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The Journal-Lancet

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ES THE MEDICAL PROFESSION OF MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA, AND MONTANA

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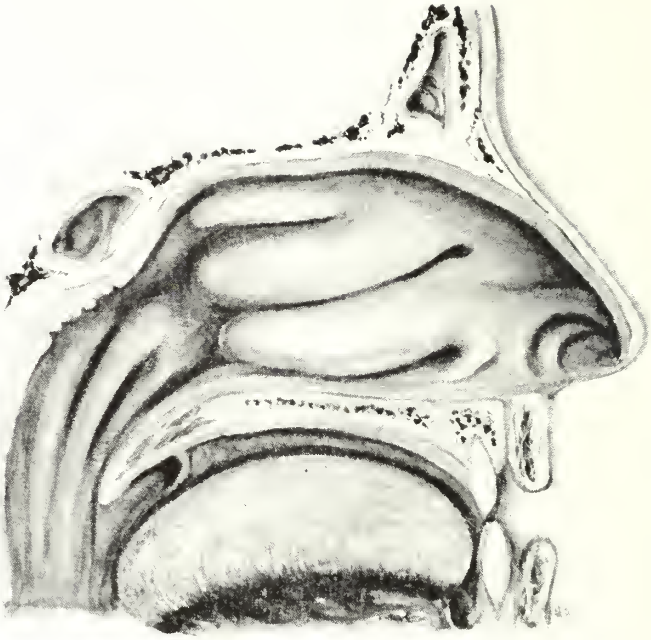

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COMING *in* *February*

Articles and features to be found in the next issue of THE JOURNAL-LANCET

Specialized diagnostic radiological techniques were developed as the result of the need for more precise anatomic information than could be supplied by conventional routine radiological studies, according to Mordecai Halpern, M.D., New York Hospital–Cornell Medical Center, New York City.

In a paper on "Special Diagnostic Techniques in Lesions of the Renal Parenchyma," presented at the recent Quain and Ramstad Clinical Conference, Bismarck, N. D., Dr. Halpern states that roentgenologically the kidney is definable through excretory urography and retrograde pyelography. More recently, the isotope renogram and renoscan have been used in an attempt to convert physiological data into anatomic-pathological diagnosis.

Simple renal tomography and perirenal air insufflation have been utilized in an indirect manner: primarily for definition of extrarenal lesions.

The advent of simple but refined arteriographic methods has greatly curtailed the use of such techniques and, in part, has almost completely supplanted them in the study of extrarenal lesions.

According to the author, renal arteriography is now an important diagnostic method for study of the renal parenchyma, and this procedure permits a high degree of accuracy in the differential diagnosis of renal mass lesions.

Dr. Halpern's paper is extensively illustrated.

Among other articles scheduled to appear in the February issue are:

- **Variations in Mycobacteria Related Intimately or Remotely to the Disease Tuberculosis,** by Henry C. Sweany, M.D., James R. Thomas, M.T., James C. Bohannan, M.T., and Vernon E. Scholes, Ph.D., Mount Vernon, Mo., and Denton, Texas.

- **Protein Supplementation and Blood Pressure,** by W. M. Ringsdorf, Jr., D.M.D., and E. Cheraskin, M.D., Birmingham, Ala.

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The Journal-Lancet

SERVING THE MEDICAL PROFESSION OF MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA, AND MONTANA

The Adolescent Emotional Quandary

JACK V. WALLINGA, M.D.
Minneapolis

THE ADOLESCENT in our culture is faced with a multitude of demands and pressures: the internal physiological push for the release of aggressive or sexual tension, peer group expectations to prove himself in order to have the security of belonging, the demands of society to grow up suddenly and within poorly defined limits, and, not least, the ambivalent and often confused demands of parents that he be mature and responsible but not necessarily independent nor self-assertive.

The difficulty which the teen-aged youngster experiences in making the transition from childhood to adulthood is certainly not new nor is it characteristic only of our culture. Shakespeare wrote of the problems of the adolescent and his conflict with society in *The Winter's Tale*, "I would there were no age between ten and three and twenty, or that youth would sleep out the rest; for there is nothing in the between but getting wenches with child, wronging the ancientry, stealing, fighting."

Conflicting values held by society or by parents tend to attract and serve as vehicles for the tensions of the interpersonal conflicts between parents and adolescents. The discharge of this friction often then becomes recurrent, replacing other more acceptable methods of expression. The adolescent may be involved in a struggle with conflicting values because of his particular age and his struggle for identity and independence.[1] The adolescent whose independent strivings are not accepted may either revolt into unruliness or resort to seeming acceptance of dependence, but in an unhealthy, concealed, and hostile manner.[2]

One of the major purposes of adolescence within the individual's own developmental pattern is the achievement of a clear, acceptable, sense of self. With the beginning of adolescence, a disturbance of the previously immature passive sense of identity occurs by dissolution, and what has been described as an identity crisis or uncertainty sets in. Toward the end of adolescence, this uncertainty should be resolved and give way to a more constant, mature sense of self again.[3]

PARENTAL PROBLEMS

The transition of adolescence is not always easy for a youngster's parents. Parents should ideally provide a neutral objective atmosphere of tolerance, if not understanding, with gradually decreasing, generalized, firm, flexible limit-setting while the teen-ager is going through this difficult period. Now, when the adolescent particularly needs emotionally stable parents, he too often is faced instead with angry parents who feel that each act of his is specifically calculated to defy, disrespect, or inconvenience them.

Much of this anger arises out of the parents' confusion. They are uncertain of their parental

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JACK V. WALLINGA *practices child psychiatry in Minneapolis and is a consultant to several child welfare institutions.*

role; they are not sure where their responsibility stops and how far their authority extends. The rules and expectations which were agreeable to their child for the past twelve or fourteen years are suddenly completely unacceptable to him. If the parents resort to physical discipline, which before was an acceptable parental prerogative, the youngster now regards it as a physical attack; it is destructively humiliating to the adolescent and may provide him with a pattern, and with provocation, to become physically abusive himself. Feeling attacked and defied, parents often respond with many petty, unreasonable demands and unenforceable restrictions or with daily changing attitudes and rules which are inconsistent, confusing, and contradictory.

ADOLESCENT UNHAPPINESS

No matter how distressed parents are with the situation, the adolescent is inevitably even more unhappy. Ideally, the child enters adolescence in a state of uncertainty, facing difficulty and serious conflicts, and emerges from it with stable, socially acceptable patterns. It's normal for the adolescent to be in a state of flux and change. It's normal for him to keep conflicts alive in order to deal with them and to test out various solutions before he decides on any one as suitable. It's more pathological for the adolescent to have crystallized too soon the fixed character responses than it is to go through what we call adolescent turmoil.[1] The quiet, tightly controlled, but less obviously conflicted adolescent may be the one who most urgently needs help.

Adolescence by definition is an interruption of peaceful growth. The adolescent manifestations may come close to the symptom formation of the neurotic, the psychotic, or the character disorder and verge almost imperceptibly into borderline states. They may, in fact, resemble forms of almost all the mental illnesses. Such fluctuations between extreme opposites would be deemed highly abnormal at any other time of life. At this time, however, they may signify only that an adult structure of personality is taking a long time to emerge, that the ego of the individual in question does not cease to experiment and is in no hurry to exclude possibilities for adjustment.

The adolescent lives in an atmosphere of great anxiety, high elation, deep despair, quickly rising enthusiasm, utter hopelessness, and burning intellectual or philosophical preoccupations. The yearning for freedom, a sense of loneliness, the feeling of oppression by parents, the impotent rages or active hates directed against the adult world, the erotic crushes (whether homosexually or heterosexually expressed), and suicidal fantasies may all be a part of the normal adolescent's emotional quandary.

In a study[5] of the genesis of violence in juvenile gangs, it is suggested that a collective rage, the product of the deprivation of success, authority, and the future, expresses itself in juvenile gang violence. This gang rage is paradoxically simultaneously blind and furious and yet subject to control. It becomes a weapon or a resource that may be thrown at any object: another gang, society, or authority. Sometimes enough hostile energy is left over from the structured outbreak so that innocent bystanders may become victims. The alienation of the juvenile gang from society perhaps accounts for the intensity and structure of this rage so that violence itself undergoes social evolution and takes on moral and ritualistic meanings.

PSYCHIATRIC DIAGNOSIS

From all this, we see that the adolescent may at times temporarily appear to be psychotic and still not be mentally ill in the usual sense. Differentiation between typical adolescent defenses and true schizophrenic reactions is perhaps our most difficult diagnostic problem in child psychiatry. One of the most reliable criteria for differentiation is the persistence of the symptom picture. Periods of seclusiveness, despondency, and sexual or philosophical preoccupation do not last long or lead to a break with reality if the ego is an essentially healthy one which is only undergoing one of the transient states of fragmentation normally associated with adolescence. Pervasiveness of the symptom picture and also its apparent inexplicability more strongly suggest a psychotic disturbance. Diagnostic labels for the adolescent are unreliable and often invalid. Understanding of the underlying emotional conflictual processes is so much more enlightening and workable. One must examine the history for previous disturbances of personality and look carefully into the quality of relationships between the adolescent and his family.

Because of the fluid nature of the adolescent ego, hospitalization and electroshock therapy are seldom indicated even in adolescent schizophrenic reactions. Supportive psychotherapy and medication, while maintaining the patient in his normal surroundings, allow reality testing and the quicker reestablishment of healthy ego defenses. The adolescent is a psychotherapeutic challenge—too old for play therapy, too young for traditional psychoanalytic therapy on a couch.

The teen-aged patient needs face-to-face communication with his therapist or contact, literally, may be lost. We are finding that the adolescent often needs to directly face himself in order to experience his own exaggerated or inappropriate defenses. In therapy, the use of a mirror for the adolescent to see himself or a recording machine for him to hear himself has proved useful in providing an opportunity for him to become aware of this inappropriate, defensive facade.

"Memory romance" is a term which nicely characterizes an important facet of the adolescent period. The teen-ager is able to derive a great deal of gratification from his self-preoccupations.[6] He is less dependent than either the child or the adult on external objects for emotional satisfaction. He derives much pleasure from going back in fantasy to earlier memories in the family and reliving them in a way that will restore to him some of his infantile sense of control and well-being. This he spins out endlessly into richly embroidered romantic fantasies. Out of all this is achieved one of the purposes of adolescence—a firm sense of self. This acute emphasis on defining a sense of personal identity is referred to as the identity crisis.

INITIATION INTO ADULTHOOD

Practically all primitive cultures have simplified the growing-up process of the young adolescent by means of pubertal rituals or initiation ceremonies which clearly and decisively indicate to all that adulthood is achieved. This formal ceremony, conducted by the men of the tribe, also gives mothers an acceptable way out of their maternal protective role and effectively removes the young initiate from the mother's control.

These rites generally follow a pattern which can be summarized as follows:[7] A youth must observe certain food restrictions when he comes of age. He is taken from his family and put into seclusion either in the ceremonial men's house or outside of the community. During the seclusion period, which may last from a day to several years, he is indoctrinated with certain tribal traditions, customs, and beliefs. He learns to prepare his own food, thus becoming independent of parental care. Painful rites, including circumcision, tooth extraction, lip and nose piercing, help him identify with adults. In a ritual meal, previous restrictions are cancelled, stressing his final separation from parental sponsors. Now he is independent and responsible for his deeds. He then returns as a self-reliant adult.

It is not difficult to see the many counterparts to the pubertal rites which we have in our own society; smoking, drinking, and driving an automobile are perhaps the 3 most prominent demonstrations of having achieved manhood among our youths. However, these are all legally permissible at different ages, and parents do not necessarily agree with the legal age of permission.

Other symbolic acts reminiscent of the primitive tribal rites are the adolescents' peculiar dress, bizarre haircuts, gathering at the drugstore or bowling alley, and even tattooing themselves. Rock-n-roll music might even be thought of as the "tribal music" of the contemporary adolescent. But these acts, unfortunately, come not from the adults in our society but from the youngsters themselves. Not being generally accepted, such acts offer no feeling of satisfaction to the teen-ager, and he repeatedly tries to prove himself and demonstrate his emancipated masculinity. As in primitive tribes, this proving seems more necessary for the boys, but girls frequently have their comparable rituals.

CONCLUSION

For the adolescent to erupt and rebel is normal. We expect him to be inconsistent and unpredictable, to fight his impulses, and to give in to them, to love his parents and to hate them, to revolt against them and to be dependent on them, to be more idealistic, artistic, generous, and unselfish than he will ever be again; but we also expect him to be the opposite, to be self-centered, egotistical, and calculating. The adolescent may suffer during this period; he may need help, but also he should be given time and scope to work out his own solution. His parents may need help and guidance to be able to bear with him. Certainly few situations in life are more difficult to cope with than an adolescent attempting to liberate himself.

This paper was presented to the Northwestern Pediatric Society, October 5, 1962.

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James Johnston Waring (1883-1962)

Practitioner, Scientist, Scholar, Teacher, Lecturer, and Author

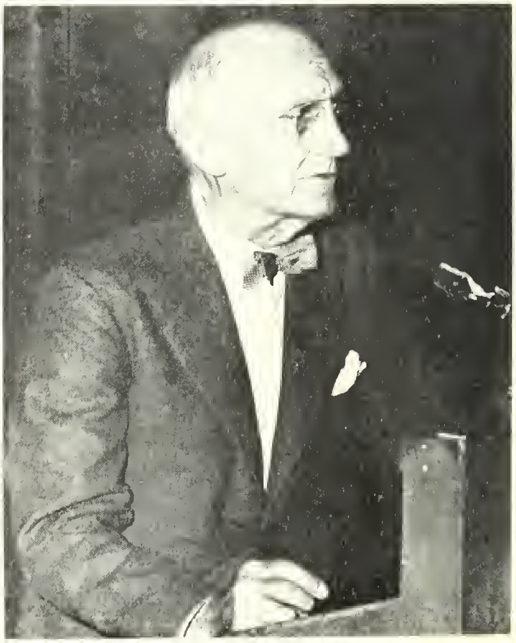
J. ARTHUR MYERS, M.D.
Minneapolis

"The day will come when you will be glad you had tuberculosis." Those cruel words were said to a 25-year-old youth seriously ill with tuberculosis. The patient raged that nothing could be further from the truth. But the day did come when James Johnston Waring, who was the patient, admitted that he was glad for the privilege of having had tuberculosis. He became one of America's greatest internists and a leader in the fight against the disease.

In Colorado the name Waring is identified with that of another dedicated physician, the late Dr. Gerald B. Webb. The Webb-Waring Institute for Medical Research is located on the campus of the University of Colorado Medical Center, Denver, and is a memorial to these two great men of medicine. The Institute, formerly called the Colorado Foundation for Research in Tuberculosis, is dedicated to the study of diseases of the lungs and is a testimonial to the work and devotion of such men. Dr. Waring was president of the Institute at the time of his death in 1962.

James Johnston Waring was born in Savannah, Georgia, on August 11, 1883. As a boy he attended private schools in Savannah and Lawrenceville. He went to Sheffield Scientific School at Yale University from which he was graduated in 1904. He entered Johns Hopkins University School of Medicine the same year. It was an easy choice for him to decide on a medical career, since his grandfather had been dean of the George Washington University School of Medicine, and his great-grandfather, grandfather, and one uncle had been physicians.

All went well until the end of his third year of study in 1907 when he was found to have clinical pulmonary tuberculosis. He was sent to the Adirondack Cottage Sanitarium, later known as the Trudeau Sanatorium, at Saranac Lake, New York, where he came under the care of a staff of great doctors whose achievements were to affect the entire world. They were Drs. Edward L. Trudeau, Lawrason Brown, Edward Baldwin, and Woods Price. At least three of the staff physicians at the sanitarium knew from personal ex-



JAMES JOHNSTON WARING

This is the first of a group of articles to be published in The Journal-Lancet *under the title James J. Waring Series in memory of one of America's greatest internists.*

perience of the mental suffering of James Waring during this trying time, for they, too, had developed tuberculosis while students of medicine. Dr. Trudeau was stricken with the disease while a student at the College of Physicians and Surgeons, New York. Dr. Baldwin diagnosed his own condition when he was a student at Yale University. Dr. Brown, like Dr. Waring, was a third-year student at Johns Hopkins University when he broke down with tuberculosis.

On December 23, 1907, Dr. Trudeau wrote Waring the following encouraging letter in longhand:

> My dear Waring,
>
> At this Christmas season, I wish I might be able to say a helpful word of cheer to you. To see one's health shattered, one's good ambitions ruined, to be held day by day through long months in the grip of a relentless foe and to be helpless and at times hopeless is hard indeed, but I have known all this and for this reason I can feel for you. Neither you nor I can solve the great mystery of life and its contradictions, perplexities, and suffering. I have lived much longer, however, than you have and have learned that many of the things we so repine at losing are really of little moment, are unenduring, and unsatisfying, and that to know God in our hearts is what really matters most in this life. I have seen souls grow while bodies shrivel and the really great things of life unfold to a man when all that the world prizes most has been denied him. At any rate, I want you to know that you are in my thoughts on this Christmas day and that I pray it may bring you a glimpse of the heavenly vision and faith and peace and hope may come to your soul!
>
> Most sincerely yours,
>
> E. L. Trudeau

Young Waring, however, always took a realistic attitude about his condition. The Adirondacks proved too cold a climate for the southern-born Waring, and he decided to go to Colorado to continue treatment. He was taken to Colorado on a stretcher in 1908. He was under the care of Drs. Will Swan and Gerald B. Webb. In Denver he found Dr. Henry Sewell "a great inspiration." He later wrote, "From all of these men I learned much about science and the art of the practice of medicine. I owe an undying debt of gratitude to all of them, and, indeed, to others whose names I have not mentioned."

EARLY YEARS AS DOCTOR

Within three years, he recovered enough to be permitted to return to medical studies. He entered the medical department of the University of Colorado where he took his third-year work for a second time and completed the fourth year. He spent 1914 on an internship at St. Luke's Hospital, Denver, and 1915 on a residency at Phipps Sanatorium (Agnes Memorial Sanatorium) also in Denver. In 1914 he became an instructor at the University of Colorado Medical Center and was promoted to an assistant professorship in 1926. It was a never-ending source of joy and satisfaction to Dr. Waring when he became the first full-time professor of medicine at the University of Colorado and Chief of Medical Service, Colorado General Hospital, in 1933. He served in the latter position until reaching retirement age in 1952, after which he was emeritus professor of medicine.

Over the years, Dr. Waring had agonizing moments when he feared breakdowns would repeat themselves. He later wrote, "It has been my good fortune to serve three separate and extended 'hitches' as a bed patient, the time so spent numbering in all about nine years." He said, "The sick man who fights back to renewed health and strength, who has rehabilitated himself, may have lost in his contest a measure of stamina but may have won in its place a precious appreciation of illness not readily secured otherwise. Misfortune often expands both heart and mind into a broader view of our fellow man."

Dr. Waring had a remarkable sense of humor for an outwardly shy-mannered man. He often repeated the words of his former physicians who helped him through those difficult years. He told of Dr. Lawrason Brown's prophecy to him, "The day will come when you will be glad you had tuberculosis." It seemed unreal to him at the time but he often admitted later that the doctor had been so right. A favorite line from Dr. Edward L. Trudeau was, "It takes a bit of Divine Fire to get well of tuberculosis." It tickled him when Dr. Kingston Fowler, a great British doctor, said, "No fool ever gets well of tuberculosis."

On June 15, 1921, he married Miss Ruth Porter. Two daughters were born to the couple. They named them Ruth Porter and Anne Johnston. Ruth is now Mrs. Robert W. Halpenny, who has a daughter and 2 sons. Anne is Mrs. Edward D. White, Jr., and has 2 sons. Dr. Waring adored his grandchildren and loved to be with them.

The doctor had 2 hobbies: fishing and book collecting. In fact, on October 16, 1941, he read a manuscript, "The Anatomy of Angling," for his presidential address at the annual meeting of the Clinical and Climatological Association at Skytop, Pennsylvania. The article appeared in *The Rocky Mountain Medical Journal* in 1942 and concluded with the following: "The mere catching of fish is a sterile affair. But the fisherman who sallies forth in the true spirit of Izaac Walton, with ear attentive to the voice of Nature and eye observant of her wonders, will return from his expedition with a renewal of that strength which is a magic compound of body and spirit."

Mrs. Waring enjoyed going on fishing trips with her husband and was equally enthusiastic about the sport of fishing. She was proud of the fact that in 1956 she and her husband fished part of every month except November and December. Although the doctor fished in many parts of the South, he never stinted on his visits to Georgia.

In 1958, when the Warings were in Florida, the doctor caught a 12-pound bone fish for which he received a citation from the twenty-third annual Metropolitan Miami Fishing Tournament. The award was for "Proved skill with rod and reel." He also received the citation from the Ruby Schaefer Fishing Contest for "Hooking and landing" and the Miami Fishing Tournament Award for "Releasing game fish and sharing the sport with others."

His other hobby was book collecting. He loved to search for first editions in the many places his travels took him. The books, on every phase of medicine, were said to be one of the finest collections in the country. He gave the greatest part of his collection to the University of Colorado School of Medicine. The library there has a Waring Memorial Room.

A FRIEND TO ALL

The medical school student body so loved, respected, and admired Dr. Waring that in 1957 they organized the Waring Society, whose membership consisted of especially deserving students in the senior class. The society meetings are held monthly during the school years when one or more papers prepared by members are presented. For the May 13, 1963, meeting of the Waring Society, Paul N. Anderson, a senior in the school of medicine, presented a beautiful and elaborate profile of Dr. Waring. At the end of each recent year, the 2 papers which have been judged best have been published in *The Rocky Mountain Medical Journal*. This society established a Waring Book Fund and books purchased from this fund are placed on a special shelf in the Waring Room.

Dr. Waring was an excellent writer and among his best-remembered articles, both for subject matter and literary skill, are "The Family Circle," which appeared in the transactions of the Association of American Physicians in 1949, and "The Patient and the Physician," which was published in *The American Review of Tuberculosis* in July 1950.

He was always in the first rank of fighters for public health. Physicians in the earlier days had a rugged time in their efforts to obtain the necessary facilities for advancing the state of the public's health. They not only had to be excellent physicians, but they had to be forceful citizens and ready to speak their minds. Dr. Waring's record proves that he was such a man. He actively participated in any controversy which had the public health of the state and country in question. Tuberculosis had almost taken his life and now he was its confirmed enemy. His own fight with the disease and his subsequent recovery from the infection inspired him to become one of the nation's greatest leaders in the battle, which is still being waged.

Dr. Waring, or Jim, as he was known to thousands throughout the country, was ever on call to supply support or advice. He was a man of exceptional charm with an excellent sense of humor. He could always be depended upon to step up the morale of any dull session of meetings with the telling of his many delightful and witty stories. No one enjoyed a friendly card game more than Dr. Waring. This love of life he shared with his patients, his students, and his friends. For about twenty years, he enjoyed the experience of a private medical practice in Denver, Colorado, which he shared with Drs. Sherman Bonney, Leonard Van Stone, and Robert Liggett.

In 1925 Dr. Waring came to Minneapolis to inspect a special school that had been developed for tuberculous children. This interested him immensely, as did all aspects of tuberculosis control. During this visit, the Minneapolis workers were so impressed with Dr. Waring's wealth of knowledge, his scientific approach to the problem of tuberculosis, and various other important items that, thereafter, we looked upon him as a counselor and most trustworthy friend. Throughout the years, we frequently sought his advice on various problems. On April 6, 1953, he was in Minneapolis to present the annual J. W. Bell lecture on tuberculosis before the Hennepin County Medical Society. His subject was "Nontuberculous Cavities of the Lungs." The next day he participated in a conference of the staff of the Veterans Administration Hospital. On October 11, 1954, Dr. Waring delivered the main address at the annual meeting of the Minnesota Tuberculosis and Health Association. By special request, he graciously arrived early to participate in our regular Sunday morning television program on tuberculosis.

Many a time I bore witness to his kindness. In December 1927, while on a tour of inspection and study of institutions for the tuberculous, medical centers, and so forth, on the West Coast, arrangements were made for a day in Denver.

Dr. Waring gave up his entire day's work and accompanied me to the various institutions and organizations in that city. What a wonderful day of instruction that was. No meeting of the National Tuberculosis Association or other organizations of which we were both members was complete without Dr. Waring's presence.

I remember a meeting of the National Tuberculosis Association in Colorado Springs, 1932, when heated discussions took place as to whether it is better for a human being to have or not to have tuberculous infection. Later, Dr. Waring said privately to me, "Of one thing I am certain, the person who does not become infected with tubercle bacilli will not develop tuberculosis."

INTERESTED IN AIDING CHILDREN

Dr. Waring's interest in protecting children against tuberculosis was abiding. He was particularly desirous of seeing long-term studies conducted on children. In fact, in Denver he had participated in a study which consisted of a complete examination of infants. These examinations were repeated periodically as far into adulthood as possible. He was eager to observe how initial invasion with tubercle bacilli behaved when acquired at different ages in the lives of children and young adults. In 1931 he published a paper entitled, "Childhood Tuberculosis in Denver." When he was invited to membership on the committee on tuberculosis of the American School Health Association in 1955, he graciously accepted and became a continuing tower of strength to the committee.

He read rough and final drafts of every annual report in addition to his many other helpful activities. One of his contributions was a 1955 paper, "The Significance of Small Epidemics of Tuberculosis," in which he pointed out that the first step toward adequate control is the routine use of the tuberculin test which reveals recent convertors. Another important paper was entitled, "Achilles Heel of Tuberculosis Control," in which he said, "The weak spot of our enemy, tuberculous disease, is its curability in its early stages. Its strong point is its capacity for multiplication by virtue of its contagiousness. Ignorance and delay in diagnosis inevitably results in one person with open tuberculosis infecting one or more persons and these infect other persons and so on ad infinitum." He said, "It is as simple as guinea pigs and dandelions! This multiplication has got to stop. For years we have had the most important diagnostic tool available for any infectious disease, the tuberculin test. When the test is positive, that person harbors a tuberculosis focus somewhere in the body." Again he said, "The Achilles heel is on the foot of the doctor who does not do the test."

Dr. Waring's manuscripts were often packed with shock provoking words which, with his vast knowledge of the disease, easily kept him out front for so many years in the battle against tuberculosis.

In November 1955, when the National Jewish Hospital presented an International Symposium on Tuberculosis in Infancy and Childhood, Dr. Waring played an important role. Throughout the entire conference, apparently he did not miss a single session. Indeed, the highlight of the conference occurred on the evening of November 9 when he and Mrs. Waring presented the speakers from various nations and a large number of guests from this country with a most complete dinner and delightful entertainment at the Denver Country Club. This was a beautiful expression of good will to the persons around the world engaged in the solution of the tuberculosis problem among children.

Dr. Waring was enthusiastic over the certification of schools program of the American School Health Association. On May 20, 1960, he wrote, "I think the whole idea of the certification of schools program has been an excellent one."

RECIPIENT OF MANY HONORS

Approximately 20 organizations and societies were greatly benefited by Dr. Waring's membership. He served in various capacities including president of the National Tuberculosis Association in 1935, president of the American Clinical and Climatological Association in 1941 to 1942, and chairman of the American Board of Internal Medicine in 1946. He also enjoyed 14 honorary positions, including associate editorship of the Annals of Internal Medicine, honorary memberships in the British Thoracic Society, the American Thoracic Society, and the American College of Chest Physicians. No man could have been busier than Dr. Waring, but he still took the time to be helpful with publications of manuscripts on medical subjects, not only in his own state but throughout the nation. He was active in several Denver clubs including the Cactus Club, Denver Country Club, Denver Club, Wigwam Club, and Mile-High Club.

He was pleased and happy in 1945 when he received the Gold-headed Cane award from the University of California School of Medicine. This award was instigated originally by Dr. W. J. Kerr, University of California, "as a continuing symbol of all that is good in American medicine." In 1949 Dr. Waring instigated a Gold-headed Cane ceremony at the University of

Colorado School of Medicine. In 1959 he received the Alfred Stengel memorial award of the American College of Physicians "in recognition of his many years of loyal and devoted service to the college, his outstanding influence on medical education, and his contributions to the practice of internal medicine and clinical research."

The extent of his dedicated service also brought him the Norlin recognition medal awarded annually by the associated alumni of the University of Colorado for distinguished achievement in 1951 and the Award of Honor of the General Rose Memorial Hospital for humanitarian services in 1953. The degree of Doctor of Science honoris causa was conferred upon Dr. Waring by the University of Colorado. In 1958 he received the Johns Hopkins Fifty Year Alumnus medal.

Dr. Waring also received the Sabin award of the Colorado Public Health Association for his outstanding contributions to public health in Colorado and for his leadership in tuberculosis control in 1955. In 1957 a tablet was erected in Denver General Hospital to commemorate the achievements of Drs. Waring, G. W. Holden, and Charles Elder in the field of public health. He was named the state's first citizen in health and welfare when he received the Civis Princeps award at Denver's Regis College in 1959.

Denver honored him in 1960 with a program at the annual meeting of the Denver Tuberculosis Society. Invitations read that the society was honoring "one of Colorado's most eminent physicians for his contributions over a lifetime in the hot war against tuberculosis." Praise was accorded him in the citation speech made by Mark H. Harrington, former president of the National Tuberculosis Association, who said, "He exerted tremendous influence upon those who were so fortunate as to be his students. He imbued them with a sense of responsibility for the sick and the unfortunate; he impressed them with the necessity for the careful scientific approach to the problems of treatment; he demonstrated by his own example that there was no substitute for complete integrity in the professional relations with their patients. Fortunately, his influence had not been confined to the classroom, for by participation in countless medical and scientific meetings he had also served as teacher and preceptor to his fellow physicians."

The great qualities of the man as a physician who always possessed and exercised the virtue of humility was apparent on May 21, 1953, when the Trudeau medal was awarded to Dr. Waring by the National Tuberculosis Association for "the most meritorious contributions to the cause, prevention, or treatment of tuberculosis." Dr. J. Burns Amberson, who presented the medal, said, "Dr. Waring had multiplied himself many hundredfold and thus extended his beneficent influence far beyond the limits set for the average man." This medal, named for Dr. Waring's former physician, Dr. Edward L. Trudeau, was most gratifying to him.

CONTRIBUTIONS TO ARMY

The following material concerning Dr. Waring's contributions to the United States Army was kindly prepared by General Carl Tempel and Colonel James Wier:

"Those of us who knew Dr. Waring as a civilian advisor to the surgeon general of the United States Army and as a medical consultant to the staff of Fitzsimons General Hospital in Denver, Colorado, are aware of the many fine contributions he made to the medical programs of the army.

"After World War II, the Army Medical Service recognized the need for expanding its programs in education and research, and the surgeon general called upon a number of eminent American physicians and scientists for guidance. Among the advisors who responded to this call was Dr. James J. Waring of Denver.

"With the largest peacetime army of our history, it was only natural that the American people would demand the best medical service possible for the men and women in uniform. In a world depending on the strong defense forces of our country to assure the protection of freedom and human dignity, it was necessary to have the best in armament and in the supporting services. Dr. Waring and his colleagues recognized this need and helped the Army Medical Service build an enviable program for patient care, medical education, and research. The program structure built on these 3 pillars of medicine soon attracted the attention of physicians, dentists, and others from allied scientific fields. Fortunately for our defense program, many fine physicians and other medical personnel joined the Army Medical Service in the years that followed and provided the high caliber of medical work accomplished.

"The civilian consultants who supported the professional service programs of the army were gratified by the response and appreciation of regular staff members and those in training. Growth of the programs for patient care, education, and research throughout the army were phenomenal. At Fitzsimons General Hospital, for example, accredited training became available for all the medical specialties, and it was found desirable to increase the civilian visiting staff to 80 members. Dr. Waring served as the senior consultant and advisor in medical education for many years. His work and that of other consultants was of tremendous importance to the army; their accomplishments are a real tribute to the interest and support of so many public-spirited physicians and scientists.

"One of the major contributions Dr. Waring made as a consultant to the army was his five-year follow-up study of thousands of military patients who were discovered to have minimal pulmonary tuberculosis or pleural effusions. As director of this research project, he evaluated the breakdown rate, morbidity, and mortality of such patients following various forms of treatment in the prechemotherapy era. Published reports of this clinical investigation in the *American Review of Respiratory Diseases* documents the importance of this monumental contribution to American medicine.

"Dr. Waring always seemed to enjoy his visits to Fitzsimons General Hospital and his work with army medical service personnel. He expressed a regret on more than one occasion that he did not have the opportunity to serve his country as a member of the Armed Forces during periods of wartime mobilization. Actually, his friends knew that health reasons prevented this, and, moreover, that he rendered invaluable service as a civilian. He gave unselfishly of his time and effort in his capacity as consultant, and his contributions to the staff were sincerely appreciated.

"His lectures at the hospital were always concise and informative; his ward rounds were pleasing to the staff, and, of course, the patients looked forward to his helpful visits. His gentle, kindly attitude toward everyone was an inspiration to behold, and students were charmed by his warm, intimate manner. He could be intensely serious, erudite, and, of course, could quote all the important recent medical literature for the benefit of his students. More often than not, however, he illustrated his informal remarks or lectures with stories, and his irrepressible humor enlivened many occasions.

"Dr. Waring served as a consultant at Fitzsimons General Hospital from the mid-1940s until his death in 1962. Failing health in recent years prevented him from participating in his usual weekly visit, but he continued to support the army medical programs as long as he was able. He was indeed a real friend to the men and women of the armed forces. On behalf of Lieutenant General Leonard D. Heaton, the Surgeon General of the United States Army, and members of the Army Medical Service, we submit these words of tribute to a great American—Dr. James J. Waring."

CARL W. TEMPEL, *Major General, M.C. (Retired)*
Formerly Chief, Department of Medicine, and Commanding General of Fitzsimons General Hospital

JAMES A. WIER, *Colonel, M.C.*
United States Army Executive Officer, Fitzsimons General Hospital

INTEREST IN RESEARCH

In 1948 Dr. Waring was elected president of the board of trustees and director of research of the Colorado Foundation for Research in Tuberculosis. Thereafter, he worked incessantly for the development of this organization. In his response to the presentation of the Trudeau medal in 1953 he said, "A building to be known as the Gerald B. Webb Memorial is now being constructed at the Medical Center in Denver and will house the Colorado Foundation for Research in Tuberculosis. . . . We have only a distant view of the promised land of eradication of tuberculosis. Much remains to be done."

Dr. Waring had long recognized Dr. Roger S. Mitchell as one of the most outstanding research workers in the country. One of the happiest events in his life was when Dr. Mitchell accepted his invitation to join the Webb Institute for Medical Research staff as its director in February 1955. In 1961 the name, Colorado Foundation for Research in Tuberculosis, was changed to the Webb Institute for Medical Research.

In his report to the board of trustees for the year 1960-61 Dr. Waring said, "Despite the fact that we have added another floor to the building in the last year, we are now under great pressure to add two more floors. . . . There can be no doubt about our need to add a division of microbiology, staffed by microbiologists specially trained in tuberculosis research, and there can be no doubt that our other staff members need more room. We also need more space for animals and animal research and more space for cleaning, preparation, and sterilization of glassware, animal cages, and so forth."

My last conversation with Dr. Waring was on the evening of November 26, 1961, in his home in Denver. This was a most pleasant occasion. We saw him as vivacious as ever, reminiscing and planning for future developments of the Institute. He related experiences of a special fishing trip in Wisconsin as well as those in southern states. His prime interest was in providing adequate space and facilities for the Webb Institute. He told Dr. H. C. Sweany and me that efforts in raising $250,000 for enlargement of the Institute were meeting with success.

His enthusiasm in promotion of the Institute was so great that, although it was late at night, he insisted upon taking us on a tour of inspection of the building and showing us views of planned additions. His most pleasing comment of the evening, and the one in which he obviously took greatest satisfaction, was that the directorship of the Institute was in such excellent hands. He felt assured of its future development and contributions.

On May 31, 1962, he expressed a great desire to retire and have Dr. Robert L. Stearns take his place as president of the Webb Institute for Medical Research. Two days later, on the evening of June 2, he suddenly died at the age of 79 years. His desire that Dr. Stearns replace him was promptly fulfilled. Soon after his death, the Institute was renamed the Webb-Waring Institute for Medical Research. The funds for which he had worked so long and so hard were received soon thereafter, and the further addition and equipment for an ideal research center are now being obtained.

The author wishes to thank Miss Dorothy Riley for her assistance in the preparation of this manuscript.

HAND FRACTURES cannot be treated as minor injuries. Faulty treatment may lead to major disabilities, because the hand is usually incapable of functional adaptation. Strict application of the principles of fracture treatment is difficult, however, because of the smallness of the hand bones. For effective treatment, the fractured bones should be immobilized immediatly after injury and the hand kept in the position of function throughout. The fracture is reduced by gentle manipulation if possible, but if this technique is not promptly successful, open reduction may be less traumatic than continued attempts at closed reduction. The necessary period of immobilization ranges from three to five weeks for phalangeal and metacarpal fractures to several months for carpal fractures.

PAUL R. LIPSCOMB, M.D., Mayo Clinic and Foundation, Rochester, Minn. Amer. Surg. 29:277-282, 1963.

IRREVERSIBLE PROGRESSION TO CANCER is likely when endometrium shows a high grade of atypical glandular and epithelial proliferation. Less pronounced proliferation, however, or such atypical features as active stroma, squamous-cell metaplasia, or eosinophilic epithelium are not diagnostic. Islets of altered endometrium not differentiating into a secretory phase may remain sharply demarcated from surrounding tissue for ten years or longer and then give rise to cancerous changes. Cancer appears to develop more rapidly from endometrial hyperplasia after the menopause but is also more likely to be overlooked because of endometrial atrophy. Persistent uterine symptoms should be reinvestigated promptly.

Findings at curretage in 54 women in whom uterine cancer developed up to twenty-eight years later were compared with those in 100 women with atypical uterine bleeding but no cancer for at least twelve years after curretage. When minor endometrial abnormalities were found at curretage, the average interval before the diagnosis of cancer was a little more than six years in postmenopausal women and twelve and a half years in menopausal and premenopausal patients. When both atypical glandular and epithelial proliferation were found, the average interval was a little less than five years in all cancer patients. The paradoxical finding that cancer developed in an average of a little more than three and a half years in postmenopausal women with apparently normal atrophic endometrium at curretage suggests that areas of early carcinogenic changes were not recognized. Low degrees of atypical epithelial proliferation were found frequently in the control group as well as in the cancer patients.

HERBERT K. BEUTLER, M.D., MALCOLM B. DOCKERTY, M.D., and LAWRENCE M. RANDALL, M.D., Mayo Clinic and Foundation, Rochester, Minn. Amer. J. Obstet. Gynec. 86:433-443, 1963.

Multiple Anaplastic Change in the Lower Genital Canal

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The discovery of a second site of anaplastic change concomitant with or subsequent to the appearance and treatment of initial malignancy raises several questions: (1) Is the newly discovered lesion metastatic from the primary? (2) Is the second lesion an example of multicentric origin and, therefore, resulting from a common stimulus, or are the 2 lesions quite separate and distinct primary malignancies? and (3) Is the second lesion related to the primary one in the form of a recurrence or possibly the result of therapy for the initial disease?

These problems relate to the established criteria for the definition of multiple primary malignancies as were set forth by Billroth[1] in 1869: (1) the lesions must be histologically different; (2) the lesions must arise at different locations; and (3) the lesions must produce their own metastases. Adherence to these criteria would obviously rule out squamous cell carcinomas beginning at different areas, since such would be histologically similar. Conversely, the acceptance of Goetze's[2] modification of the criterion (the macroscopic and microscopic appearance of the tumors must be that of the usual carcinoma of the organs involved) would allow a majority of the instances of multicentric origin to be included among multiple primary malignancies.

Consequently, the definition of a second primary malignancy is much dependent upon the criteria accepted by the individual. As will be noted in table 1, the instance of a second primary malignancy has been recorded by a number of authors[3–9] as varying from 3 to 10 percent. However, there are dissenters to these figures. For example, Watson[4] felt that multiple sites of anaplastic change in similar tissues, particularly the skin, should be omitted as examples of true multiple primary malignancy. By the elimination of such lesions, he found no increased possibility of the occurrence of a second malignancy over that of the appearance of a single neoplasm. Although no hard and fast rules need apply in defining multiple primary malignancy, it is imperative that metastases as well as the possibility of recurrence of the lesion or of residual disease be ruled out.

HISTOGENESIS

In spite of these differences of opinion, recent study of malignancy in general, especially of those lesions arising in specific areas, has brought out important facts relative to the histogenesis and modes of origin and spread of the disease. Cohnheim's "embryonic cell rest theory" was generally accepted until the past two decades. Studies by Willis,[10] Glucksmann,[11] Brunschwig and Tschetter,[12] and others have largely disproved this theory for the majority of tumors.

It now seems obvious, both from the studies conducted in animals and the thorough investigation of multiple lesions in man, that anaplastic changes arise in situ from the existing tissue. These may develop at multiple sites concomitantly or may spread diffusely over an epithelial surface as a result of the carcinogenic stimulus. No longer does one need to envision embryonic and undifferentiated cells lying dormant in an

TABLE 1

INCIDENCE OF MULTIPLE PRIMARY MALIGNANCY

Watson[4]	1.6 percent
Hurt and Broders[5]	3.3 percent
Warren and Gates[6]	3.7 percent
Stalker[3]	4.5 percent
Moertel[7]	5.1 percent
Warren and Ehrenreich[8]	6.8 percent
MacDonald[9]	10.7 percent

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area for many years, awaiting only the correct stimulus to awaken them to unprincipled growth. It is now apparent, considering the continuing growth process in many tissues, that young and more undifferentiated cells constantly replace the dying ones in most areas.

This process is readily seen in stratified epithelium in which growth from the undifferentiated basal cell to the mature cornified surface cell is easily demonstrated. Recent studies by Peckman[13] show the rapidity with which the stratified epithelium in the vagina of the castrated rat is regenerated when estrogen is introduced into the system. With the use of tritiated thymidine, sections taken through this area at various intervals after use of estrogen would indicate that the epithelium regenerates completely in thirty to forty-five hours. Although this is obviously an abnormal situation reproduced artificially, it nevertheless illustrates the regenerative activity of a specific tissue as well as the sensitivity of this tissue to a stimulus (estrogen in this experiment). Regenerative situations are most evident clinically in the healing of tissues after denudation by various traumas.

The lower genital canal presents an area with problems demanding specialized attention. Because of a possible common embryologic origin of these tissues,[14] a specific susceptibility to similar stimuli might exist. It is true that stratified squamous epithelium covers the external genitalia, the vagina, and the portio vaginalis of the cervix. There is, however, every reason to suspect that this epithelium is not of a common embryologic origin nor that it is similarly susceptible to certain stimuli. The vulva is recognized to be of ectodermal origin, and the relationship to skin is evidenced by the degree of keratinization, the underlying epithelial appendages, and common infectious processes. In addition, the differences in the pathologic aberrations and the response to hormone stimuli of the vulvar tissues as compared to that of the vagina and cervix are obvious.

The lower segment of the vagina is known to be of urogenital sinus or endodermal origin and, although lined by a stratified squamous epithelium, demonstrates striking reactivity to hormone stimuli. The origin of the stratified squamous epithelium lining the upper vagina and portio vaginalis of the cervix remains somewhat controversial. It is generally accepted that the upper vagina, the entire uterus, and the fallopian tubes are of müllerian origin. It is also true that there is stratified epithelium covering the müllerian tubercle before penetration of the urogenital sinus to form the uterovaginal canal. Whether the epithelium of müllerian tubercle is entirely destroyed by the penetration of the epithelium from the urogenital sinus, or whether there is a meeting of the two epithelia at some point near mid-vagina, remains unsolved.

Pathologically, the frequency of malignant change in the cervical epithelium as contrasted with that of the vagina is striking, cancer of the cervix being from 120 to 150 times more common. Furthermore, there is less response of the cervical-stratified epithelium to hormone stimuli than that noted in the vagina. Finally, there is no definite evidence to suggest that tissues of similar embryologic origin uniformly respond in a like manner to malignant stimuli. One has only to look at the difference between the frequency of tubal and endometrial adenocarcinoma to recognize the fallacy of this argument.

MULTICENTRIC ORIGIN

In spite of the fact that the above arguments were brought forth to deny a similar embryologic origin of the lower genital canal epithelia, all evidence points to the increased frequency of multicentric origin or multiple primary malignancies in these histologically similar epithelia. Table 2 lists the findings of several authors.[7,15–20] Whereas the incidence of multiple malignancies in general varies from 2 to 13 percent, the possibility that a second malignancy will occur in this common area is several times more frequent. While small, these figures show a similar trend.

An additional problem that arises in the attempt to definitely allocate a second site of malignant change in the lower genital canal concerns the differentiation between multicentric foci of origin as opposed to a continuous surface spread of the malignant process or "cancerization" of the epithelium. Green[19] noted multi-

TABLE 2

MULTIPLE PRIMARY MALIGNANCIES IN LOWER GENITAL CANAL

	Cases	*Second primary*	*% M. Mal.*	*Second primary L.G.C.*	*Percent in L.G.C.*
Taussig[15]	55V	10	6.45	3	30
Mider[16]	590C	11	1.9		
Moertel[7,17]	137VV	16	6.6	9	56
Brown[18]	53V 27Va. 1055C				
Green[19]	32V	32	13.4	3	10
Day[20]	35V	4	11.4	3	75
	23Va.	1	4.3	0	—
	699	22	3.1	3	14

centricity of origin in 20 percent of patients; Marcus[21,22] and Abell and Gosling[23] recorded a similar experience. Consequently, it is difficult to doubt this method of development of malignant foci in the area. The problem arises, however, in distinguishing between these multicentric foci and incompletely treated in situ malignancy, an example of the above-mentioned "cancerized" epithelium. Recently, an attempt was made to separate these cases as much as possible even while pointing out the impossibility of a positive differentiation in many instances.[24]

The patient who has been treated with radiation for either intraepithelial or invasive cancer poses a final problem. Many observers recognize that ionizing irradiation is a carcinogenic agent particularly relative to the skin but suggest that there must be a long latent period between the institution of therapy and the development of the subsequent malignancy. Silverstone's[25] study concerning the problem disproves such a hypothesis. He suggests that in the area of radionecrosis there are no viable elements, and subsequent malignant change would undoubtedly not occur. Cancer may develop, however, in the viable tissue at the edge of the radionecrotic area; furthermore, if incomplete destruction occurs, a complex balance of necrosis and repair is set up that may eventuate in cancer. Because of these variables, the length of time from the administration of radiation to the appearance of tumor may differ greatly.

Our own interest in this problem was stimulated many years ago in our first study of carcinoma in situ of the vulva.[26] In 14 patients, it was recognized that 3 had had irradiation therapy for cancer of the cervix in previous years. We[27] later noted the occurrence of 3 endometrial cancers in the follow-up study of the irradiated group. In a study of mixed mesodermal tumors,[27] we also recognized that approximately one-third of the patients had had previous pelvic radiation either for benign endometrial lesions or cervical malignancy. Thus, the possibility of malignancy being brought about by irradiation presents an additional problem in the follow-up study of malignancy.

CASE REPORTS

The following cases may serve to better demonstrate the types of problems that exist:

Case 1. C. W., a 38-year-old female, para O, was first seen at the age of 26 years because of dysmenorrhea. Dilation and curettage and biopsy of cervix were performed. Diagnosis of in situ carcinoma was made and sharp conization performed to confirm this opinion and rule out invasion. A modified Wertheim's hysterectomy was carried out. Patient was lost to follow-up study after two years and returned eleven years posthysterectomy with "a lesion on the lip of the vagina for two years." Examination revealed raised, irregular, grayish-red lesions involving the right labium minus, the entire clitoral area, and the fourchette. Biopsies from all sites revealed carcinoma in situ. A simple vulvectomy was performed. No invasive disease was found in the removed specimen.

This case represents a clear-cut example of multicentric foci of origin of anaplasia in the lower genital canal both at a single site (the vulva) and at multiple sites (vulva and cervix).

Case 2. V. W., a 44-year-old female, para III, was admitted in 1954 because of positive cytology and biopsy demonstrating probable in situ carcinoma of the cervix. Conization revealed possible invasion. A modified Wertheim's hysterectomy was performed. No residual anaplasia was recognized in the removed specimen. In the follow-up study, smears were initially negative; however, four years later the cytology was again reported positive, and biopsies revealed in situ carcinoma in the vaginal vault. Radium was applied to the vagina. Studies in the succeeding four years were inconclusive until the final examination in 1962, eight years after the initial therapy, when biopsies demonstrated carcinoma in situ. Vaginectomy was performed, and early invasive cancer was found in the excised tissue.

This case presents several problems: Was the second lesion in the vagina an example of multicentric origin of cancer or does this represent residual disease and, therefore, inadequate therapy of the initial malignancy? Was the tertiary lesion related to the radiation therapy or, again, one of the situations noted above, that is, multicentric malignancy or residual tumor? Certainly this case is an example of the relative inadequacy of radiation therapy for in situ disease.

Case 3. M. H., an 81-year-old female, para I, was seen first in 1959 at which time biopsy revealed in situ carcinoma of cervix. Conization led to a diagnosis of early invasion of stroma and, in view of general physical condition and the final study of tissue, it was elected to treat the patient with radiation therapy. Consequently, she received 2 applications to cervix followed by external therapy. Reaction was severe, and she developed rectovaginal and later ureterovaginal fistula. Transverse colostomy was first performed and, subsequently, a reimplantation of left ureter. Cytology was negative during this three-year period.

In 1963, four years after radiation therapy, a 1 by 2 cm. depigmented, slightly elevated, and partially granulomatous lesion appeared, without symptoms, on left labium majus. Biopsy revealed in situ carcinoma. Simple vulvectomy was performed without incident.

This case demonstrates the problem of differentiation of multicentric foci of origin of cancer from a second primary tumor. It also introduces the added factor of the possible carcinogenic effect of irradiation. It seems obvious that this patient's tissues were exceedingly sensitive to irradiation in view of the presence of the fistulae. It also seems obvious that patients with in situ cancer are more wisely treated surgically.

Case 4. A. K., a 68-year-old female, para XII, was first seen in 1940 at the age of 45 years. At that time, biopsy was said to show carcinoma. (Review of these slides does not confirm invasive disease. Atypism only is present.) Patient received 1,040 mc. of radium but refused further therapy. Follow-up study was intermittent during the next twenty years. In August of 1961, cytology was reported Class V, malignancy. Biopsy from remaining cervix revealed carcinoma in situ. In view of past history of "invasive cancer" and the possibility of deeper disease, it was elected to perform Wertheim's operation with node dissection. Thorough study revealed no more than in situ disease. Postoperative course was stormy. Urinary retention and pyelonephritis persisted for one month. In the follow-up period, the patient developed a left ureterovaginal fistula and, due to loss of function in the kidney, nephrectomy was performed.

This case illustrates several points: Initially, the patient today would have had more investigation before institution of therapy and probably then would have been treated surgically. Further, the ability of radiation, particularly in inadequate amounts, to produce atypical cellular pictures is well demonstrated. It is obvious that, in retrospect, a lesser surgical procedure would have sufficed to remove the foci of atypical epithelia. Nevertheless, residual deep foci of residual tumor have been found in similar cases with only in situ changes in the tissue available for study.

In addition, it must be recognized that the cellular changes noted in 1961 may have been induced by the irradiation or may have borne no relationship but merely have been an example of multicentric foci of origin. Finally, the increased postoperative problems when surgery follows irradiation, particularly after the end arteritis has had a chance to develop, are demonstrated.

CONCLUSIONS

From our accumulated material and that of other observers, it becomes obvious that great care must be taken in the follow-up study of the patient with treated malignancy, either in situ or invasive. No longer can the original site of tumor be the sole focus of interest. It is all too common for the physician to treat the patient with a cervical malignancy as if she were simply a large uterus with arms, legs, and head. It must be recognized that in about 5 percent of all patients, a second primary tumor will develop elsewhere in the body. More important to the gynecologist is the frequency with which multiple primary malignancies and multicentric foci of origin occur in the lower genital canal. These possibilities make it evident that each patient with a malignancy in this region must have thorough study of the entire adjacent area by smear, biopsy, and Schiller's test. Also, use may be made of additional means of cancer detection such as colposcopy or histochemical tests, which have been recently advertised and suggest that the presence of certain enzymes in the vaginal pool may lead to early diagnosis. The tissues removed in treatment of in situ cancer or invasive malignancy must be thoroughly studied to determine whether adequate margins have been obtained. Although such study will not rule out multicentric foci of origin, it will rule out the possibility that anaplastic change exists at the cut edge of the tissue and will alert the clinician to the need for much more thorough follow-up study of the remaining tissue. Finally, in view of the possible carcinogenic effect of irradiation on adjacent, unprotected tissues; the increased difficulty in follow-up study due to bizarre cellular changes induced by radiation; and the general effectiveness of surgery, the operative approach is the therapy of choice for in situ malignancy.

This paper was presented at the annual meeting of the North Dakota Society of Obstetrics and Gynecology, September 1963.

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Section on PAIN and DISTRESS

Editor: JOHN S. LUNDY, M.D., Chicago, Ill.; *Co-Editor:* RALPH M. TOVELL, M.D., West Hartford, Conn.; *Associate Editors:* ROBERT R. JONES, M.D., Rochester, Minn., JOSEPH A. GIBILISCO, D.D.S., Rochester, Minn., FLORENCE A. MCQUILLEN, C.R.N.A., Chicago, Ill.

Arrangements have been made with DR. EDWARD A. BANNER *of the Mayo Clinic to prepare an article on pelvic pain and its mechanisms. This timely article will appear in the Pain Section of a forthcoming issue.*

In this issue, an abstract of an article by Gordon and Goel focuses attention on pain problems in cancer patients.

Usable, satisfactory techniques for handling of patients suffering from chronic pain, especially if cancer is the cause of the pain, are urgently needed. Articles on this subject are invited.—J.S.L.

Cancer Pain

JOHN S. LUNDY, M.D.
Chicago

CHRONIC debilitating cancer pain presents itself on a variety of occasions. Such pain is automatically terminated in time, but, in contrast to what happens when the pain of some nonterminal condition is present, progressive debility makes the patient dependent on others to provide the care he requires for daily life.

When pain is caused by some nonterminal condition, the problem of addiction merits attention. Pain caused by cancer does not necessarily forbid addiction to drugs, as does the chronic debilitating pain of a nonterminal illness; however, in either case, if the patient can be active enough and can exercise enough self-control to take care of himself, at least partially, he obviously will do better than if he is entirely dependent on someone else.

INDIVIDUAL NATURE OF PAIN

Pain is preeminently a highly individual factor which must be given the same consideration in the cancer patient that it should receive in the patient whose pain is not caused by a malignant process. We all recognize this individual variation in pain and how it is manifested. We know that there are stoic persons who will not complain much of pain that some people would consider severe. An example of a person who tolerates pain better than do others is the one who is hard of hearing. Complexion also seems to be a factor. Redheaded people do not withstand pain well, nor do they tolerate warm sunshine or even iodine. Blonds tolerate pain better than do redheads, but not so well as brunets. Occupation, nationality, and the zones of weather from north to south all seem to be associated with a person's ability to tolerate pain.

MEASUREMENT OF PAIN

There is much difference of opinion as to how well pain can be measured. Scientifically, pain is difficult to measure accurately. Didactically, we recognize that there is considerable difference between what we may conveniently designate as scientific pain and clinical pain. This also holds true when the question of shock is discussed. Reference to a dictionary shows that the word, "pain," comes from a Greek word meaning "penalty," and that it is defined as a sensation of discomfort, distress, or suffering.

JOHN S. LUNDY *is editor of the Section on Pain and Distress.*

It is now thought that the intensity of pain can be measured by a dolorimeter in terms of dols. Thus, the pain of childbirth is registered as 10.5 dols, that of a migraine headache as 5 dols, and that of a toothache as 2 dols. The average man seldom experiences pain of an intensity exceeding 6 dols. A pain of 2 dols' intensity may cease after the taking of aspirin, but increasing the dose to more than that needed to control pain of that intensity will not help.

The above means of measuring pain is of rather recent origin. For a long time, after I was persuaded by Dr. William J. Mayo to include the problem of pain relief in the field of anesthesiology, I had to devise some means of my own to express a relative value in my measurement of pain.

EMPIRICAL JUDGMENT OF DOSES

As my experience gradually extended to a variety of drugs for the relief of pain, I came to my own decision on the point of what quantity of each agent would relieve pain under certain circumstances in certain persons. For example, I considered morphine to be a rather effective analgesic agent, and I observed that specific doses, such as ⅛ gr., ⅙ gr., ¼ gr., or 1 gr., usually could be relied upon to provide a rather definite degree of relief from a certain kind of pain in the average person. This was empirical, of course, but in this way I was able to make rapid evaluations of the intensity of pain. To be sure, this method was not scientifically exact, since it entertained a subjective component, but it was a practical way to make certain decisions with dispatch, especially as to the cause of the pain.

Surely all of us agree that it is less than ideal to treat a symptom the cause of which is undecided. The converse is not true: if the cause is known but cannot be treated, it is advisable and imperative to treat the pain.

RELIEF AND HAZARDS

Decision as to how the pain should be treated, whether with drugs or without drugs, is important. If the amount of drug required to relieve pain is so large that it becomes necessary to add an antagonist to ensure that the patient will withstand the depressant effect and breathe adequately, there is always the associated possibility that the patient will recognize the danger inherent in the massive dose and deliberately take large doses of the drug without the antagonist in an attempt to terminate his life.

In fact, the hazard ineluctably associated with the use of powerful pain-relieving drugs was one reason for consideration of the permanent relief of stubborn pain by the application of measures to destroy the conductivity of nerves, either sensory or sympathetic. This requires diagnostic interruption of conduction over nerve trunks and can be brought about in more than one way. For example, use of a local anesthetic agent may produce temporary interruption of the pain pathway. This type of effect is not always convincing.

A substance which I call PAB2 can be used if epinephrine is added to it. The solution consists of 2 percent procaine hydrochloride, 3 percent ammonium sulfate, and 4 percent benzyl alcohol, with the addition of about 0.25 cc. of 1:1,000 epinephrine to each 10 cc. of the solution. The effect lasts from hours to days and usually is convincing.

So-called trigger points may exist; if these are injected 2 or 3 times, remissions of pain may occur. Remissions of this nature sometimes become longer and longer until they are quite satisfactory. The injection of alcohol or of a 6 percent solution of phenol and water also has been used.

One difficulty in using these solutions is that sometimes the dose injected spreads beyond the area for which it is intended and untoward results may ensue. For example, alcohol neuritis may develop at those sites in which the alcohol contacts nerves not involved in the difficulty for which injection was done. It is readily perceived, then, why I tried to find some method which would be more satisfactory than the injection of such solutions for the relief of pain.

The several techniques for nerve block necessary to effect the interruption of pain patterns, either surgically or chemically, have been described repeatedly by myself and others. Some additional refinements, of course, are added from time to time, but the essential nature of the techniques varies little.

I was able to find a type of insulation which can be stretched over a spinal needle containing a stylet. This particular needle is stiff enough to be guided accurately, without bending, to the locations desired, and it can be identified readily in roentgenograms. If the pain pathways are known, insulated needles of this type can be emplaced, roentgenograms taken for assurance that the points of the needles are in the correct locations, and diathermy current used to destroy nerve tissues. Each time this current is to be used, it must be tested first on unfrozen meat.

The diathermy machine is set at a certain predetermined reading and then a certain number of seconds are allowed to pass while the heat is applied. Sometimes such a treatment must be repeated; in certain cases, it can be repeated more than once. I have used this technique to good effect against postthoracotomy pain, and recently I tried to relieve postherpetic neuralgic pain with the procedure. The problem of shingles, however, is difficult. My belief is that the pain pathways are not limited entirely to sensory nerves, and I suspect that something similar is operative in respect to tissues supplied by the fifth cranial nerve. I have the distinct impression either that the sympathetic nervous system is a pain pathway or that it is associated with a pain pathway in a variety of conditions.

Pathological conditions of the pancreas may be difficult to diagnose; often, one of the symptoms is pain. As a rule, pancreatic pain can be controlled by performance of posterior, bilateral splanchnic block. This may be carried out with absolute alcohol injected through needles placed against the center of the first lumbar vertebra, or even a needle at the upper border and another at the lower border of that vertebra.

A test for results of blocking can be carried out with a baking device. First, the patient is painted in stripes with a saturated solution of cobalt chloride; then, the baker is properly emplaced and is operated at a temperature of 140° F. for ten minutes. At such a temperature, the patient usually sweats profusely and the blue stripes change to red. Where sweating does not take place, the dry areas are thus outlined. The pattern of sweating can be recorded by making a drawing on the patient's record. After performance of this type of splanchnic block, the dry area usually will extend from the thoracic cage downward bilaterally, and considerable relief of pancreatic pain will take place. The period of relief sometimes lasts more than a year, but during the same period, the malignant process will have advanced, as is the case with many other malignant lesions. Obviously, whereas considerable immediate relief of pain caused by carcinoma of the pancreas can be obtained by posterior bilateral splanchnic block, the carcinoma will gradually extend itself so that the patient will experience more and different types of pain as time goes on. On the other hand, I have the impression that in the last week or ten days before death supervenes, the severity of the pain decreases. I have observed the same phenomenon in patients who have been treated with anticancer drugs for carcinoma and have exhibited marked remission of their symptoms, even though the cancer actually had not been eliminated.

NEED FOR RECORDS

A prime requisite to judgment of the efficacy of some of the above measures is the keeping of records. The records should include name of the drug, date on which it was used, dose used, and how it was used (particularly if the drug was given orally or by hypodermic injection). In my own practice, I have been especially interested in obtaining drugs which can be taken orally so that patients who cannot stay in the hospital can administer the drug to themselves at home by mouth rather than by hypodermic injection. On this point, I have some opinions which differ from those who lay down the laws and regulations as to how a drug can be dispensed. Roentgenograms which show the locations of the points of the needles constitute excellent records which can be referred to by those concerned, regardless of any differences in language. The pattern of the areas of skin anesthesia should also be recorded, whether the extent of the anesthetic areas has been determined by a sweating test or by the method of Dr. Curt P. Richter of the Johns Hopkins University Medical School.

COMMENT

To those who are concerned about the control of cancer pain, I am glad to be able to say that not only do we have a good many measures which can be used to control this pain but that the measures can be used concomitantly. The various techniques of the actual application of the drugs in question and of the methods for destruction of nerve tissue which I used to illustrate this presentation are not included in this report.

Many patients who seek the service of a physician complain of pain, of which there is an infinite variety of types. Thus, while I have been concerned herein with the pain of cancer in particular, the same methods and techniques which I have mentioned can be used against chronic debilitating pain not caused by malignant processes.

Current Literature on Pain

INTRATHECAL PHENOL BLOCK IN TREATMENT OF INTRACTABLE PAIN OF MALIGNANT DISEASE, by R. A. GORDON and S. B. GOEL: Canad. Anaesth. Soc. J. 10:357-363, 1963.

The relief of intractable pain due to malignant disease generally has been neglected. Because these patients usually have fatal disease, the tendency is simply to use narcotics in an endeavor to make their lives more tolerable. Patients treated in this way are incapacitated for their remaining days by pain and drug depression. A more reasonable approach to the problem is to attempt control of pain in a manner which permits these patients to enjoy the fullest possible life compatible with the disability imposed by the disease. This is a fertile field for cultivation by the anesthetist. . . .

The ideal in treatment would be achieved if it were possible to destroy those fibers serving pain sensation and to leave intact all other sensory fibers. . . . The risks entailed must always be weighed against the anticipated benefits when patients are selected for treatment. To destroy conduction of pain without, at the same time, destroying some other afferent fibers is still impossible. Destruction of the sensory component of the sacral nerve roots results in loss of control of bladder and bowel, and the situation must be critical before the physician is justified in exchanging the patient's discomfort for incontinence.

Frequently, one is importuned to abolish pain by the use of neurolytic techniques, when much less dangerous methods will suffice temporarily. In selecting patients for such treatment, the physician should consider other methors which may serve to control the pain with less danger to the patient. The objective must be not only to relieve pain but to maintain activity of a normal life for as long as possible. . . .

Over the past three years, we have made an effort to evaluate the use of intrathecal phenol blocks in the treatment of intractable pain associated with neoplastic disease. During this time, we have treated 37 patients in the Princess Margaret Hospital (Ontario Cancer Institute) and in the Toronto General Hospital. . . . The small number of patients treated in this manner reflects the conservative attitude of all concerned with choice of treatment. Confidence in application of intrathecal phenol blocks is growing, however, since 12 of these patients were treated in this way from January 1, 1960, to March 31, 1962, and 25 in the subsequent twelve months. . . .

Three of the intrathecal phenol blocks under review were done with a solution of phenol 7.5 percent in Ethidon and 52 with a solution of phenol 5 percent in glycerin. The solution of phenol in Ethidon has no virtue except that of radiological demonstration of the distribution of the solution. It has the disadvantage of adding another irritating substance, which may itself produce arachnoiditis and which should therefore be removed from subdural space. . . .

Nineteen (51.3 percent) of these patients received complete relief of pain until death or for a period exceeding one month. An additional 11 patients (29.7 percent) had moderate to good relief with reduction of sedative, or complete relief which lasted less than one month. Two patients (5.4 percent) were improved, although relief of pain was incomplete. Five patients (13.6 percent) had no relief. The only serious complication was incontinence, which occurred in 4 patients who had blocks of sacral nerve roots and required indwelling catheters (10.8 percent).

From LUNDY, J. S., and MC QUILLEN, F. A.: Anesthesia Abstracts. Minneapolis: Burgess Publishing Co., 1963, vol. 61. Copyright by J. S. Lundy.

CHRONIC RENAL DISEASE AND HEAVY USE OF ANALGESICS, by T. B. REYNOLDS and H. A. EDMONDSON: J. Amer. med. Ass. 184:436-444, 1963.

Since 1953 numerous reports have appeared in the European literature which tell of an association between chronic interstitial nephritis and prolonged ingestion of phenacetin-containing compounds. . . . The pathological findings in the kidneys have been somewhat variable. Renal papillary necrosis has been common. . . . Strangely, in the American literature, we found only one complete case report. . . . We are reporting on 8 patients with probable phenacetin nephritis seen during a three-year period. The historical lesions seem to us characteristic enough to justify the belief that this is a specific entity. . . .

No cause for alarm is necessary regarding ordinary usage of phenacetin-containing compounds for analgesia. All of our patients, as well as most of those reported by other authors, had ingested tremendous quantities of the drug before renal disease became apparent. In 2 of our patients . . . no evidences of renal disease were present when the patients were first seen, and this followed many years of heavy phenacetin ingestion. Until the problem is further elucidated, however, it may be prudent not to prescribe phenacetin-containing drugs in patients with known renal disease. Effort should be directed toward detection of the phenacetin addict as early as possible so that his habit pattern can be interrupted before development of chronic nephropathy. Examination of renal tissue in such patients before the onset of renal failure may disclose the earlier forms of pathological process and clarify its pathogenesis.

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EFFECTS OF MORPHINE, LEVALLORPHAN, AND RESPIRATORY GASES ON INCREASED INTRACRANIAL PRESSURE, by S. W. WEITZNER, G. T. MC COY, and L. S. BINDER: Anesthesiology 24:291-298, 1963.

If dogs with increased intracranial tension respond as do normal dogs and man to hypercarbia and narcotics, it may be presumed that patients with increased intracranial pressure may be treated with narcotic analgesics, provided respiratory depression is prevented. The present study was undertaken to evaluate this possibility. . . .

In the first series of experiments (cerebrospinal fluid pressure elevated with Cytal), the response was measured to apneic oxygenation (5 dogs), to ventilation with 5 percent carbon dioxide in 95 percent oxygen (4 dogs), and to ventilation with 8 percent oxygen in 92 percent nitrogen (4 dogs). All the dogs in this group were paralyzed and their lungs ventilated with 100 percent oxygen immediately after intubation to effect denitrogenation. . . . The second series (narcotic experiments) was designed in 4 parts, each having one of several . . . drug combinations. . . .

Hypercarbia caused a rise of intracranial pressure in both groups. If the hypercarbia following morphine was reversed or prevented, so were the concomitant changes in intracranial pressure reversed or prevented. In view of these findings, it is suggested that morphine under proper circumstances may be used in the neurosurgical patient.

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A STUDY OF POSTOPERATIVE PAIN, by MARK SWERDLOW, ALEXANDER MURRAY, and R. H. DAW: Acta anaesth. scand. 7:1-19, 1963.

This investigation was carried out on 223 patients after abdominal surgery. Three new analgesics (oxymorphone, phenazocine, and dextromoramide) were compared with morphine in the relief of postoperative pain. The drugs were administered intramuscularly under "double-blind" conditions. . . .

The study was divided into 4 periods. Each patient received a pair of drugs, the pairing of the drugs being alternated in the 4 periods. The patient was interviewed before and after the 2 analgesic injections, and the degree and duration of relief were assessed and side effects noted. All assessments were made by the same person.

The relief afforded by 2 injections of narcotic frequently lasted much longer than the time 1 interviewer could be expected to remain continuously on duty. In patients who received 2 injections, the second drug always gave longer relief than the first, regardless of which drug was given. The longer the time from the end of operation to the first injection, the longer the relief from that injection. No statistically significant difference was found in the degree or duration of relief produced by these doses of the 4 analgesics. Certain inconsistencies were noted in the performance of the drugs in the various periods of the investigation.

From LUNDY, J. S., and MCQUILLEN, F. A.: Anesthesia Abstracts. Minneapolis: Burgess Publishing Co., 1963, vol. 61. Copyright by J. S. Lundy.

A STUDY OF INTRAVENOUS LIDOCAINE AS A SUPPRESSANT OF COUGH REFLEX, by J. E. STEINHAUS and LEWIS GASKIN: Anesthesiology 24: 285-290, 1963.

The intravenous administration of local anesthetics for analgesia or as a supplement to general anesthesia has been the subject of numerous reports over a period of years. . . . Observation during a previous study revealed that suppression of the cough reflex was the most striking action of lidocaine when used as a supplement for general anesthesia. Overall purpose of this study was to determine if the degree of cough suppression produced by the intravenous administration of this local anesthetic differed substantially from such drugs as meperidine and thiobarbiturate at dose levels which did not seriously depress respiration. The second portion of the study was designed to test the effect of lidocaine on the cough reflex during induction of nitrous oxide-ether anesthesia, since these respiratory reflexes are often troublesome during this induction. . . .

In the first portion of the study, thiobarbiturate was employed as the major agent; in the second portion, diethyl ether was employed. Preliminary observations indicated that the endotracheal tube was an effective and predictable stimulus of the cough reflex. When reflexes were suppressed to a point where the endotracheal tube caused no spontaneous cough, additional stimulus was produced by moving the tube 3 times through a distance of 1 inch. If no cough or irregularity in the respiratory pattern occurred as the result of this stimulus, a complete suppression of the cough reflex was presumed to have occurred. In most instances, visual observation was made of cough and respiratory irregularities. However, in a portion of the studies, a balloon was placed in the esophagus and connected to a pressure transducer to give pressure tracings which reflected the changes in intrathoracic pressure. The minute volume determinations were made with a Wright respirometer. . . .

A comparison of lidocaine and meperidine as depressants of the cough reflex during general anesthesia revealed that the local anesthetic could completely suppress cough without severe respiratory depression; the opiate caused respiratory arrest in a high percentage of patients before this reflex was depressed. In a study which added the irritant effects of diethyl ether to those of the endotracheal tube during induction, the administration of lidocaine resulted in significantly shorter and smoother inductions when compared to a saline placebo. These studies suggest that the local anesthetics are representatives of a qualitatively different type of central nervous depression which may offer a practical therapeutic approach to the control of the cough reflex and related reflexes of the upper respiratory tract during general anesthesia.

From LUNDY, J. S., and MCQUILLEN, F. A.: Anesthesia Abstracts. Minneapolis: Burgess Publishing Co., 1963, vol. 61. Copyright by J. S. Lundy.

CHILDBIRTH PAIN RELIEVED BY COMBINED PARACERVICAL AND PUDENDAL NERVE BLOCKS, by A. J. KOBAK, M. S. SADOVE, and A. J. KOBAK, JR.: J. Amer. med. Ass. 183:931-933, 1963.

Pain stimuli, in the first stage of labor, are transmitted by the uterine afferent sympathetic nerves. The latter emerge from the uterus and enter the broad ligament area approximately at the site of the internal cervical os prior to the formation of the lower uterine segment. The pain impulses pass in sequence through the uterine plexus and the pelvic (or inferior hypogastric) plexus, which are in the broad ligament space. The pain stimuli continue to the superior hypogastric plexus in the region of the bifurcation of the abdominal aorta. This neuropathway continues to the lumbar sympathetic chain and enters the spinal cord at the eleventh and twelfth thoracic segment.

Childbirth pains attain a maximal degree of intensity after 7 cm. of cervical dilation and continue into the second stage of labor. At this time, the pain stimuli originate from both the afferent uterine and the pudendal nerves that emerge anatomically from the second, third, and fourth sacral roots. Bearing-down pains are a reflex circuit of nerve stimulation that originates in the afferent branches of the pudendal nerve as the perineum is stretched by the presenting part of the fetus. When uterine sympathetic nerves have been previously infiltrated by paracervical blocks, the additional pudendal nerve injections at the end of the first stage should remove the remaining source of pain stimuli during the second stage of labor. This includes the bearing-down sensations. However, these nerve blocks may occasionally fail to relieve the residual discomforts of low backaches or groin pains. . . .

In a previous report of 100 cases, various agents were cautiously used in the interest of safety. We have now analyzed an additional 208 cases for purposes of comparison. Mepivacaine (Carbocaine) hydrochloride was selected and used in 90 percent of this series, because its safety was on a par with other safe agents and it has a relatively long duration. . . .

One hundred fifty patients (72.1 percent) . . . were classed as having excellent pain relief, and 51 (24.5 percent) obtained good results. The remaining 7 (3.4 percent) had fair to poor pain relief. In comparing the percentages of excellent results, the service patients had 53.6 percent and the private group had 84.1 percent. Psychological procedures were used with private patients to minimize fears and apprehensions. However, when the good and excellent results are classified in 1 group, pain relief of private and service patients was about the same percentagewise (97.5 percent and 96.0 percent). . . .

A problem which involved a minority of the cases (14.5 percent) concerns cervices which are slow in dilating after paracervical block. Lest the nerve block wear off, oxytocics may be necessary in patients having inadequate uterine contractions. Initially we used oxytocin and recently found sparteine to be of value. . . . The psychological preparation of the patient during pregnancy and the presence of the doctor for timely administration of the nerve blocks were found to be necessary to obtain the highest level of childbirth pain relief.

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Transactions of the North Dakota State Medical Association

SEVENTY-SIXTH ANNUAL MEETING

Dickinson, North Dakota, May 4, 5, 6, and 7, 1963

(Continued from the November 1963 issue)

PROCEEDINGS
Of the House of Delegates, Second Session

Speaker Christoferson called the meeting to order at 2:30 P.M. The chairman of the Credentials Committee, Dr. Buckingham, reported that a quorum was present.

Secretary Buckingham called the roll. The following delegates and alternates responded:

Drs. A. C. Burt, Fargo; J. F. Houghton, Fargo; H. A. Norum, Fargo; J. B. Murray, Fargo; G. H. Hall, Fargo; J. F. Schneider, Fargo; G. H. Hilts, Gando; G. W. Seibel, New Rockford; R. C. Painter, Grand Forks; R. H. Leigh, Grand Forks; J. A. Sandmeyer, Grand Forks; R. H. DeLano, Northwood; G. R. Richardson, Minot; L. A. Giltner, Minot; A. M. Gameron, Minot; G. J. Klein, alternate, Valley Gity; C. J. Baumgartner, Bismarck; E. G. Vinje, Hazen; P. O. Dahl, Bismarck; M. E. Nugent, Bismarck; R. B. Tudor, Bismarck; M. A. K. Lommen, Bismarck; John Elsworth, Jamestown; J. Van der Linde, Jamestown; D. E. Skjei, Williston; W. C. Hanewald, Dickinson; N. B. Ordahl, Dickinson; James Little, Mayville.

There were 28 delegates present, including 1 alternate. Also attending the meeting were:

Drs. Joseph Sorkness, T. H. Harwood, R. W. McLean, J. D. Graven, Dean Strinden, Tom Pederson, J. D. Nierling, Amos Gilsdorf, G. J. Glaspel, K. G. Vandergon, C. H. Peters, E. J. Larson, R. Mahowald, Frank Naegeli, E. H. Boerth, C. M. Lund, and Mr. Lyle A. Limond and Mr. Daniel E. Buchanan.

As there was no objection, the reading of the minutes of the first meeting were dispensed with. Dr. Donald McCarthy, President, Minnesota State Medical Association, was next introduced.

DR. McCARTHY: "Gentlemen: I shall not take up any of your time, other than to say I am certainly enjoying being here. We have many things in common and many things that we can work out jointly.

I enjoyed the session with the Blue Shield this morning. I am looking forward to observing the session this afternoon. Unfortunately, I will have to catch the train back tonight.

You in North Dakota have taken the lead on the Kerr-Mills Bill, but I understand that the governor of Minnesota has signed this bill for Minnesota. It is interesting that we got through the Senate unanimously on this Kerr-Mills Bill and in the House by 105 votes. We think we have a good bill and we have the need in Minnesota."

Speaker Christoferson next requested Dr. Gilsdorf to present a check from the AMA-ERF to Dean Harwood. Dean Harwood's remarks follow:

DEAN HARWOOD: "Thank you, Dr. Gilsdorf, for this very substantial check of $6,046.56. I presume that you would like to know what will become of this check. I will deposit it with our business manager for "Dean Harwood's Fund." We have, at the medical school, expenses which are not chargeable to a state budget. We are limited on travel and allowed to send only 1 man to each meeting. Part of the reason for going to a meeting is to meet with friends and receive stimulation and enthusiasm. We can, through the use of this fund, enable the anatomy department, for instance, to send more men from their department to each meeting each year.

Throughout the country I have had many deans tell me that this is the most valuable fund they have. In Kansas, they deposit this check in a downtown checking account so it can be a dean's fund and be available for their needs.

I certainly appreciate this, not only because of its importance to us, but because the physicians in the state are supporting medical education. I hope as time goes on that more and more physicians will see fit to send us a check regularly."

The next order of business was the report of the Reference Committee to consider the reports of the president, secretary, executive secretary, and treasurer.

In the absence of Dr. Hanewald, Dr. G. H. Hall, vice-chairman, presented the following reports and their discussions, which were adopted section by section and as a whole:

1. *Report of the President.* The Reference Committee commended Dr. Larson for an outstanding job and a very thoughtful report. They felt that emphasis should be placed on paragraph 3 of the report and that each society should be kept informed more frequently of the problems of general interest in medicine. It was suggested by the committee that the district society members should meet with their local legislators several times during the year. This portion of the report was adopted.

2. *Report of the Secretary.* The Committee reviewed the report and noted his remarks regarding delinquent dues. All members were urged to pay their dues promptly. This portion of the report was adopted.

3. *Report of the Executive Secretary.* The Reference Committee commended Mr. Limond for a well-detailed report. It was felt that, in the future, more action could be taken toward scholarships to the University of North Dakota Medical School. This portion of the report was adopted.

4. *Report of the Treasurer.* The committee studied the several reports and statements of the treasurer and reiterated that more information should be at hand to explain the thought behind the investment program. They stated that the figures were very complete, but not revealing. This portion of the report was adopted.

The motion was made by Dr. Hall and seconded by Dr. Tudor that the report be adopted as a whole.

DR. W. C. HANEWALD, Chairman
DR. G. H. HALL, Vice-Chairman
DR. R. B. TUDOR
DR. GALE RICHARDSON

Reference Committee to Consider the Reports of the Delegate to the A.M.A., Medical Center Advisory Council, and Committee on Medical Education

Dr. Sandmeyer, chairman of this committee, presented the following reports and their discussions, which were adopted section by section and as a whole.

1. *Report of the Delegate to the American Medical Association.* The committee commended Dr. Wright for his faithful efforts as a delegate to the American Medical Association for the North Dakota State Medical Association. It was recommended that all members of the state association read Dr. Wright's report, which again emphasizes the problems faced by organized medicine. The committee suggested that the House of Delegates demonstrate its appreciation to Dr. Wright for his long years of devoted and outstanding services by a standing ovation. This portion of the report was adopted.

2. *Report of the Representative to the Medical Center Advisory Council.* The committee reviewed the report and recommended the continuation of the student loan fund despite the fact that it appears that the loan fund is not contributing to the return of physicians to North Dakota. The committee expressed the opinion that, if 4 or 5 additional qualified students could be accommodated by relatively minor structural facility changes, this should be done. It was recommended that the blood bank should be continued in its present form.

The committee had no specific recommendations concerning the rehabilitation center, realizing that a great deal of time is required to build up and fully utilize such a center.

The committee also commended the great expansion of the biochemistry research facilities.

It was recommended that all members of the state association read the "Fact Sheet" on page 110 of the Handbook, regarding the school of medicine. It is wondered from whence these rumors came. This portion of the report was adopted.

3. *Report of the Committee on Medical Education.* The report was reviewed by the committee which expressed the opinion that even though the student loan fund apparently is not contributing to the return of recipients to the state, it should be continued as it encourages young men to go into and continue the study of medicine. This portion of the report was adopted.

Dr. Sandmeyer expressed the thanks of the Reference Committee for the time and energy expended by the members of the committees reviewed, and moved for an adoption of the report as a whole. Motion seconded by Dr. Painter and carried.

Dr. John Sandmeyer, Chairman
Dr. C. Baumgartner, Vice-Chairman
Dr. C. J. Klein, alternate
Dr. J. F. Schneider

Dr. Christofferson: "It is my distinct pleasure to introduce to you a very charming lady, who is the president of the woman's auxiliary, Mrs. J. W. Jansonius. Fern, will you please?"

Mrs. J. W. Jansonius: "It is with much pride that we of the North Dakota State Medical Association Woman's Auxiliary take inventory of the legacies we have left the past year. We feel, as Abraham Lincoln once said about women, that 'they did a lot of talk that got someplace.' We have demonstrated this by constantly working for public awareness of our principles and projects. We chose an auxiliary theme in North Dakota, 'Vision and Vigilance,' in our goal toward our national theme, 'Aim for Excellence in Achievement.'

North Dakota has a membership of 339 members in 10 districts which is 68 per cent of our potential. We do not feel that our sparsely populated state, with its great distances between 'mother towns,' is a barrier to purposeful and productive auxiliary work. We feel that, in many cases, our work in the small communities is felt much more deeply (collectively as the auxiliary or as the individual diplomat). Our membership drives are the time-honored personal appeal type. We feel that in a survey of why doctors' wives do not join the auxiliary we might find the key to our membership problems.

We found this year that not only had our bulletin subscriptions percentage increased greatly, but the percentage of those who read it had made an enormous increase. Our subscription bulletin chairman reported a 42 per cent increase in subscriptions this year. We rate the highest in bulletin subscriptions in the north central region. Our bulletin chairman constantly urges that we include the subscription rate for the bulletin in our yearly dues. She has kept in very close contact with our members, working very diligently with each district. She has put so much personal appeal into it that her success has been the inevitable result of that.

North Dakota does not want to be considered a welfare state; therefore, we have demonstrated our desire to preserve our freedom by contributing through 2 mediums: Firstly, our American Medical Association–ERF chairman has made a tremendous drive to educate our members as to how we can buy peace of mind for our medical students. She is manning a booth at our convention to make the notepaper and playing cards available. One district made a contribution of $4.00 per capita to American Medical Association–ERF. We do not have the final tally on all our contributions, but I am sure that it will be a sizeable increase. Secondly, our sophomore student loan fund in its twelfth year has an approximate value of $26,446.81. We contributed $7.38 per capita to this fund in the past year. It has magic appeal to medical students because of our low interest rate. We have been asked by the dean of the University of North Dakota Medical School to extend our loan privileges to all students rather than to just sophomores. This recommendation will be voted upon at our convention.

Our community service projects have been of the factor analysis type. A group worked with the American Association of University Women on a 'Volunteer Woman' study. It is very difficult to get this on a statistical basis, but in one district, they felt that their auxiliary members (a relatively small group) gave seven hundred and twenty-two hours in community service. Fifty-two hours were given by one woman alone who drove a cerebral palsy handicapped child and a woman who injured herself badly in a fall to the University of North Dakota Rehabilitation Center once a week. Our chairman on community service prepared a skit on follies and fads of dieting entitled 'Emilene McFad.' It was presented as a monologue. The film, 'The Medicine Man,' was presented to some auxiliaries. Many physical fitness programs were carried out in schools and parent-teacher associations. The *Junior Fire Marshal* magazine carried a physical fitness program that paralleled our own program very closely. Our community service chairman received 559 requests for the campaign kits to combat 'Food Fadism and False Claims.' She did an exemplary job in showing that calories do count.

In our complex social issue of the status of old people, we have tried to study their problems—what they fear and so forth. Our auxiliaries take a very active part in this program. One auxiliary gave a party for the senior citizens this year, and gave it a very lively theme: 'South Sea Islands.' Another group provides cakes and small prizes for a bimonthly party of the senior citizens. Our SAMA Women's Auxiliary decorated vases in which they placed carnations and delivered them to bedridden patients at a memorial home. They also sent a personal note on the first day of spring. Their annual project is their personal services at these homes twice a week.

Our legislation chairman has had the AMPAC approach to our legislative problems. She has studied both the issues and the individual candidate's voting record. She has issued the warning to all of us that it is very evident that we will be forced to vote on the King-Anderson Bill the very minute the proponents feel they have the votes to assure its passage. She urged that we have a procedure ready to activate our plans on a minute's notice. We plan to launch 'Operation Hometown.'

Our safety and civil defense programs have been woven into many other phases of community life. Our state-wide civil defense director presented the film, 'The Eagle's Talon,' and gave a very informative message on preparedness—that one-half of our tax dollar goes for defense. He placed emphasis on the fact that preparedness means more than just for nuclear attack. One community gave the medical self-help classes. Two hundred and twenty people completed the course.

News, Views, and Cues, our official publication, reaches all of the doctors' wives in the state once a year. We feel that this contact with them makes for much better understanding of our program.

Our programs have been interesting and varied: The Veterinarian in the Community, Medicine in Saskatchewan, Economics of Medicine, Program on Banking, Ambassador's Wife, Native of Latvia, and many films.

One district sponsored the annual tea for future nurses at the state health careers rally; another gives a scholarship to a worthy member of the future nurses' club. Another group held a luncheon as a money making project for the School for the Mentally Handicapped, proceeds to be used for a day camp for the handicapped.

Our SAMA Women's Auxiliary, with the help of a medical fraternity, compiled a questionnaire to give an insight into the type of schools to which they might transfer; the degree to which the students at University of North Dakota are prepared in comparison to juniors from other medical schools; information on housing and availability of jobs for wives. This information is on reserve in the University of North Dakota Medical Library. One of the members of this group, Mrs. George Ward (Joy), designed the national SAMA Women's Auxiliary emblem.

Mrs. Richard A. Sutter will be our honored guest and speaker at our convention."

Speaker Christoferson thanked Mrs. Jansonius for the most delightful moment of the afternoon.

Reference Committee to Consider the Reports of the Council, Councillors, and Special Committees

1. *Report of the Chairman of the Council.* The Reference Committee reviewed and approved the report of the chairman of the council. It was noted in the report that the first aid station set up in the Capitol was well accepted and recommended that it be continued. This portion of the report was adopted.

2. *Reports of the Councillors.* The reports of the councillors were reviewed and approved. It was noted by the committee that the members of the First District Medical Society do not endorse enabling legislation for community mental health clinics. It was recommended that all districts meet with representatives from their welfare boards, as did the Second District Medical Society. They felt that this would create better liaison between the district medical societies and their respective welfare boards. The committee noted that the Third District Medical Society is on record as being against the Blue Shield action concerning the 80 per cent–20 per cent coverage of laboratory fees in physicians' offices. Attention was particularly called to the report of the Tenth District Medical Society. The following paragraph of the report was read:

> Our Society discussed AMPAC and COMPACT when COMPACT was originated in our state. It was felt at that time that COMPACT was not a bipartisan organization, and, therefore, all members were not in favor of its support. We now believe that the feelings of some of our members have been justified. We feel that our state association has been hurt and that the purpose of COMPACT has been severely jeopardized in failing to support or offer any aid to a member of our own profession who was a candidate for the state senate. We congratulate Dr. James Mahoney on his election and express our appreciation for the efforts he has made in the name of medicine in our state. He helped organize and was the first president of the North Dakota Academy of General Practice and has served as chairman and as a member of important state association committees. We feel that COMPACT should be re-evaluated if it is to carry the name of medicine in our state.

This portion of the report was adopted.

3. *Committee on Foreign Trained Physicians.* This report was reviewed and approved by the committee. This portion of the report was adopted.

4. *Committee on Mental Health.* The committee reviewed the report and requested that, in view of the fact that the last House of Delegates voted not to approve community health centers, a general discussion be again held on the floor. All discussion was tabled and referred to the Resolutions Committee. This portion of the report was adopted.

5. *Committee on Cancer.* This report was reviewed and approved. This portion of the report was adopted.

6. *Committee on Veteran's Medical Service.* This report was reviewed and it was suggested that this committee be dissolved as there is no further need for it. This portion of the report was adopted.

7. *Committee on Maternal and Child Welfare.* This report was reviewed and approved. The committee stated that it would like to re-emphasize paragraphs of this report. This portion of the report was adopted.

8. *Committee on Diabetes.* This report was reviewed and approved. This portion of the report was adopted.

9. *Committee on Liability Insurance.* This report was reviewed and approved. This portion of the report was adopted.

10. *Report of the Committee on Crippled Children.* This report was reviewed and approved by the committee. This portion of the report was adopted.

11. *Report of the Committee on Medical Education Foundation.* This report was reviewed and approved. This portion of the report was adopted.

12. *Report of the Committee on Pharmacology.* This report was reviewed and approved. This portion of the report was adopted.

13. *Report of the Liaison Officer to the North Dakota Bar Association.* This report was reviewed and approved. This portion of the report was adopted.

14. *Report of the Liaison Committee to the North Dakota State Dental Association.* This report was reviewed and approved. This portion of the report was adopted.

15. *Report of the Representatives to the State Health Council.* This report was reviewed and approved. This portion of the report was adopted.

16. *Report of the Committee on Cardiovascular Disease.* This report was reviewed and approved. This portion of the report was adopted.

17. *Report of the Committee on Emergency Medical Service.* This report was reviewed and approved. This portion of the report was adopted.

18. *Report of the Advisory Committee to the Multiple Sclerosis Society.* This report was reviewed and approved. This portion of the report was adopted.

19. *Report of the Representative to the Crippled Children's Services Division of the Public Welfare Board of North Dakota.* This report was reviewed and approved. This portion of the report was adopted.

Dr. Little moved that the report be adopted as a whole. Motion seconded by Dr. Leigh and carried.

Dr. James Little, Chairman
Dr. R. H. Leigh, Vice-Chairman
Dr. G. W. Seibel
Dr. A. Malcolm Cameron
Dr. H. A. Norum

Reference Committee to Consider the Reports of the Standing Committees

Dr. Dahl, acting chairman of this committee, presented the following reports and their discussions, which were adopted section by section and as a whole.

1. *Report of the Committee on Necrology and Medical History.* The report was reviewed and approved. The committee noted the passing of 14 distinguished physicians in the state during the past year and asked that their memory be embellished by the recording of their names in the minutes of the seventy-sixth annual meeting of the North Dakota State Medical Association. The members of the Necrology Committee were commended for the excellence of the biographies submitted. This portion of the report was adopted.

2. *Report of the Committee on Legislation.* This report was reviewed by the committee, which extended its appreciation to the members for their efforts during the immediate past session of the North Dakota State Legislature. They felt particular emphasis should be placed on their success in the enactment of the following legislative bills: (1) the bill providing no charge by the state of North Dakota for the treatment of tuberculosis; (2) the Poisonous Substances Labeling Act; (3) the Medical Corporation Act; (4) the act requiring only licensed physicians to prescribe and treat cancer.

The committee urged more participation by individual society members in AMPAC and COMPACT. This portion of the report was adopted.

3. *Report of the Committee on Public Health.* The committee reviewed the report and expressed the wish that the following items should be emphasized: (1) recommendation for use of oral polio vaccine; (2) physical fitness program; (3) nostrums and quackery; (4) Cornell Automotive Crash Injury Research Project; (5) tetanus and rabies prophylaxis problems; (6) special project for eradication of tuberculosis in North Dakota.

The committee commended Dr. Owens and his committee for their efforts to control tuberculosis and venereal disease. This portion of the report was adopted.

4. *Report of the Committee on Public Relations.* This report was reviewed by the committee, whose members specifically stated that one of the problems of organized medicine is a lack of communication both within the profession and with the general public. It also expressed the opinion that the cornerstone of a medical public relations program is ethical medical practice. The committee reiterated their commendation to the association's council for the establishment of the emergency first aid station in the state Capitol during the last legislative session and voiced their appreciation to the individual physicians who staffed it. Special note was taken of the association's participation in the television program, "Progress, North Dakota," in conjunction with the Greater North Dakota Association. This portion of the report was adopted.

5. *Report of the Official Publication Committee.* This report was reviewed and approved. This portion of the report was adopted.

Dr. Dahl moved that the report be adopted as a whole. Motion seconded by Dr. Leigh and carried.

Dr. P. O. Dahl, Vice-Chairman
Dr. J. B. Murray
Dr. G. H. Hilts
Dr. D. E. Skjei
Dr. M. A. K. Lommen

Dr. E. J. Larson asked permission for an open discussion of problems that had developed last winter, especially some encountered by the Legislative Committee. He felt this should be discussed before the House of Delegates and asked that Dr. Peters be allowed to advise them of the action of that committee. Speaker Christoferson suggested that this should be brought up under new business and at such time Dr. Peters would be granted five minutes to discuss this issue.

Reference Committee to Consider Reports of the Committee on Medical Economics, Advisory Committee to Public Assistance, Division of State Welfare Board, Committee on Rural Health and the Governor's Health Planning Committee

Dr. A. C. Burt, chairman, presented the following reports and their discussions, which were adopted section by section and as a whole.

1. *Report of the Committee on Medical Economics.* Notice was taken that this committee had been unusually active during the past year. Appreciation was expressed to the members for their time and effort. It was pointed out that they are in the process of attempting to have the workmen's compensation board accept the relative value schedule in its entirety. In the meantime, the North Dakota Vocational Rehabilitation and Indian Service have accepted the March 1962 revisions. In September of 1962, the public welfare board agreed to accept the schedule with certain clarifications which can be reviewed by reading page 81 in the Handbook. The Reference Committee felt that it might be worth comment to assure the association that the present relative value schedule is now under investigation with the possibility of revision in some fields and that further notification will be made to the association members at a later date. It was noted that certain district societies had not appointed review committees. It was felt that these com-

mittees, inactive for the most part, should be available when their services are required. It was strongly urged that the medical societies derelict in this matter should correct this deficiency and forward the names of committee members to the secretary's office. This portion of the report was adopted.

2. *Report of the Committee on Rural and School Health.* This committee held no meetings during the year; their main activity has been obtaining immunization records in the rural areas with the help of the North Dakota Homemaker's Council. The form used is reproduced on page 84 of the Handbook. This portion of the report was adopted.

3. *Report of the Advisory Committee to Public Assistance Division of the State Welfare Board.* Dr. Burt reported that this committee had been inactive apparently because the welfare board saw no reason to seek medical advice. He added that the Reference Committee felt that, in many counties of the state, the provisions of the Kerr-Mills Bill were not being carried out, probably because of active opposition by the welfare department board at state and county level. This portion of the report was adopted.

4. *The Governor's Health Planning Committee.* It was reported that 2 meetings of this committee were held during the year pertaining to the planning of health facilities of both hospitals and nursing homes. It was noted that Dr. Dodds felt that this committee had functioned well from the standpoint of apportioning funds in an effort to avoid duplication of facilities. This portion of the report was adopted.

The motion was made by Dr. Burt and seconded by Dr. Vinje that the report be adopted as a whole.

Dr. A. C. Burt, Chairman
Dr. E. G. Vinje, Vice-Chairman
Dr. Robert DeLano
Dr. N. B. Ordahl
Dr. John Van der Linde

Dr. Hilts commented that 2 committees had reported on rural health. Speaker Christoferson said that next year these committees should be changed to avoid duplication of work for the members.

Report of the Reference Committee on Resolutions

Dr. Nugent, chairman of the committee, presented the following resolutions:

RESOLUTION No. 1

Whereas, the members of the North Dakota State Medical Association, attending the seventy-sixth annual meeting of this association in Dickinson, have enjoyed the hospitality and kindness of this fair city, and

Whereas, the mayor of Dickinson and his associates, the press, radio, hotels, and businessmen have made this session a memorable one,

Now, therefore, be it resolved that the House of Delegates express its appreciation by directing a copy of this resolution to the Honorable Mayor of Dickinson.

This resolution was adopted.

RESOLUTION No. 2

Whereas, the members of the North Dakota State Medical Association anticipate the increase in their medical knowledge to be gained from attendance at the various exhibits, and

Whereas, the exhibitors have shown great effort and interest in developing their exhibits and adding to the scientific interest at this meeting,

Now, therefore, be it resolved that the North Dakota State Medical Association extend to them our hearty welcome and thanks, and

Be it further resolved, that a copy of this resolution be sent to each exhibitor.

This resolution was adopted.

RESOLUTION No. 3

Whereas, Dr. E. J. Larson, president of the North Dakota State Medical Association for the year 1962 to 1963 has given untiringly and unselfishly of his time and services toward the continued progress of medical practice in North Dakota,

Now, therefore, be it resolved that the assembled delegates show their appreciation by a rising vote of thanks.

A rising vote of thanks adopted this resolution.

RESOLUTION No. 4

Whereas, the North Dakota State Medical Association attending the seventy-sixth annual meeting have thoroughly enjoyed and profited by an excellent scientific program, and

Whereas, the host, the Ninth District Medical Society, and the various chairmen and committeemen have excelled in providing the members of the association with the niceties of a gracious convention,

Now, therefore, be it resolved that the assembled delegates demonstrate their appreciation by a rising vote of thanks.

A rising vote of thanks adopted this resolution.

RESOLUTION No. 5

Whereas, Dr. Willard A. Wright has served the North Dakota State Medical Association as our delegate to the American Medical Association for the past twelve years, and

Whereas, Dr. Wright has not only been faithful and diligent in the performance of his duties, but has brought unusual recognition to North Dakota through his services on various national committees, including the Council on Medical Service of which he is still a member,

Now, therefore, be it resolved that the House of Delegates of the North Dakota State Medical Association commend Dr. Wright for the manner in which he has aided and promoted our association, and

Be it further resolved that a copy of this resolution be sent to Dr. Wright.

This resolution was adopted.

RESOLUTION No. 6

Whereas, the ladies of the women's auxiliary to the North Dakota State Medical Association have, through diligent and continuous effort, raised the sum of $26,446 for the medical student loan fund of the medical school of the University of North Dakota and in the past year have raised the sum of $2,379 and further donated $827 to the American medical education fund, and

Whereas, these funds have enabled many medical students to complete their medical education,

Now, therefore, be it resolved that the House of Delegates of the North Dakota State Medical Association convey to the woman's auxiliary our appreciation and thanks for their excellent work, and

Be it further resolved that a copy of this resolution be directed to Mrs. Fern Jansonius and her successor.

This resolution was adopted.

RESOLUTION No. 7

Whereas, there has been instituted a "so-called" card system of assigning Indian patients to specific doctors, which restricts the patient's free choice of physician, and

Whereas, any restriction against the free choice of physician is not in keeping with the policy of the North Dakota State Medical Association,

Now, therefore, be it resolved that the Committee on Public Health be directed to contact the Indian Bureau to work toward a solution of this problem.

This resolution was adopted.

RESOLUTION No. 8

Whereas, the apparent growth in numbers of voluntary health agencies, funds, and foundations would seem to dictate the need of physician guidance and perhaps certain disciplines;

Therefore, be it resolved, that the president of the North Dakota State Medical Association be directed to appoint a special committee entitled "Voluntary Health Fund Liaison Committee," whose function it will be to act as liaison between the aforementioned health funds and the state association.

The Reference Committee reviewed this resolution and felt that its implementation would be awkward and recommended that it not be passed.

This resolution was not adopted.

RESOLUTION No. 9

Whereas, there is increasing evidence to show that smoking, particularly the inhalation of tobacco smoke, has a harmful effect on the health of our people, and

Whereas, the continuous use of tobacco over a long period of time appears to increase the dangers to our health.

Now, therefore, be it resolved that the North Dakota State Medical Association advocates a voluntary giving up of smoking of cigarettes by those adults who have become habituated, and

Be it further resolved that the North Dakota State Medical Association participate in the educational program of our youth to encourage them to avoid smoking, and

Be it further resolved that a copy of this resolution be forwarded to the surgeon general of the United States Public Health Service, and a copy presented to the House of Delegates of the American Medical Association, and

Be it further resolved that a copy of this resolution be given to the press covering this meeting.

This resolution was adopted.

Speaker Christoferson asked for discussion on this resolution, stating that it had rather far-reaching significances. There was no discussion; resolution adopted.

RESOLUTION No. 10

Whereas, the president of the State Mental Health Association has petitioned the House of Delegates of the North Dakota State Medical Association to direct a study of mental health problems in North Dakota, and

Whereas, confused legislation has been proposed to affect the treatment of the mentally ill in North Dakota,

Now, therefore, be it resolved that the Committee on Mental Health develop the most practical method of directing, coordinating, and supervising the State School for Retarded Children, the state hospital in Jamestown, the community health services, and allied mental health programs in the state of North Dakota, and

Be it further resolved that this report be brought in to the House of Delegates in 1964 for consideration.

This resolution was adopted.

Speaker Christoferson suggested that this resolution would be studied very thoroughly and a report presented to the House in 1964. He added that after a definitive study of this resolution and all of its facets, it could then be presented to the North Dakota Legislature in 1965. This motion was passed and the resolution adopted.

RESOLUTION No. 11

Dr. Nugent: "Your Reference Committee received the resolution endorsing the position of Rockford College relative to federal aid. It was felt that no action by this association was indicated."

RESOLUTION No. 12

Whereas, according to the by-laws of the North Dakota State Medical Association, the councillor shall be elected by the House of Delegates, and

Whereas, the Second District Medical Society is opposed to this method of election, and

Whereas, the Second District Medical Society desires that this be an election of the individual district medical society,

Now, therefore, be it resolved that the president appoint a special committee on the constitution and by-laws to study this recommendation and report to the House at the next regular session.

This resolution was adopted.

RESOLUTION No. 13

Whereas, the state medical association is becoming increasingly involved in legislative activity and the sponsoring of specific matters of legislation, and

Whereas, the state association's Committee on Legislation, in order to preserve a true democratic tenor, should be directly responsible to the council and the House of Delegates of the North Dakota State Medical Association,

Now, therefore, be it resolved that the president of the North Dakota State Medical Association be instructed to call a meeting of the House of Delegates during the month of November in each even-numbered year, in order to give direction regarding legislation impending in the ensuing North Dakota state legislative session, convening the following January.

This resolution was adopted.

Speaker: "I am not sure that we have the right to 'instruct' the president to do anything. It may be that this resolution may be unconstitutional and that this would be cast out. In this event, something would have to be done at our next meeting."

Dr. Little: "Could this resolution be changed from 'instruct' to 'request'? I think this would meet the requirements of the constitution."

Speaker: "Does anyone care to amend this resolution to state 'request' instead of 'instruct'? All those in favor of the resolution as it now stands? Ayes, majority. Opposed, minority. Resolution is adopted."

RESOLUTION No. 14

Whereas, it has come to the attention of the House of Delegates of the North Dakota State Medical Association that the governor of the state of North Dakota has not made appointments to the State Board of Medical Examiners for the 3 vacancies that occurred on the board as of July 31, 1962, and

Whereas, past governors have appointed members to the board from a list of nominees submitted by the House of Delegates of the North Dakota State Medical Association, which is made up of duly elected representatives of the profession in this state, and it is acknowledged that the medical profession is best qualified to determine the availability, professional judgment, and medical qualifications of its members to protect the health and welfare of the public, and

Whereas, it is essential to proper administration and continuity of the board that appointments be made annually to avoid a situation where a large percent of the board may be replaced in one year, and thus jeopardize licensure proceedings designed to protect the health of the public,

Now, therefore, be it resolved that this House of Delegates at its duly constituted meeting of Sunday, May 5, 1963, respectfully request that long overdue appointments be made for 1962 and,

Be it further resolved that should the governor appoint a member of this association to fill a vacancy, who has not been recommended by this House, that the member decline the appointment and refer the governor to the recommendations previously presented to him; thus preserving the best interest of both the public and his chosen profession.

Dr. Nugent made the motion that the report as a whole be adopted. Motion seconded by Dr. Elsworth and carried.

Dr. M. E. Nugent, Chairman
Dr. J. N. Elsworth, Vice-Chairman
Dr. J. F. Houghton
Dr. Lloyd Giltner
Dr. R. C. Painter

Speaker Christoferson next called on Dr. Peters for a discussion of the action of the Legislative Committee during the past year's session of the state legislature. Following are Dr. Peters' remarks:

Dr. Peters: "Members of the House of Delegates, officers of the association, and councillors: What I have to say here today is not an apology or a defense of the activities of the Legislative Committee of which I am a member. But this is a report of the activities that went on this past February and March in Bismarck during the legislative session.

I think there is a principle involved here, one that is best for the patient and his family. This association is not against the mental health clinics, but we have followed the precepts laid down by the American Medical Association on Mental Health. I can quote some of the information from this precept:

1. The medical profession must provide guidance for these groups. The mechanism should be that such arrangements will enable the individual physician in the state and the county medical society to participate in assessing community mental health needs and in planning the required facilities.

2. Mental health resources are a vital part of a complex system. Physicians should eye them critically for their defects. The medical profession has always insisted on high standards of medical care.

3. Physicians should also encourage psychiatric outpatient clinics in clinics that will guarantee adequate medical responsibility.

4. Both present and future resources being used with maximum efficiency and efficacy so that physicians must serve to guarantee the most judicious use of all funds to be spent.

The principle here is medical direction. I would like to call to your mind some things existing in the state now. On a national and state level, the conservation committees have only farmers on them; bank committees only bankers; there will be only laboring men in the department of labor. Recently, a new board has been established for the North Dakota State Historical Society and that board must be made up of members of the society. I would like to have you contrast this with what happens in this state regarding medicine. The board of administration has no physicians on it. The welfare board has no physicians as members. State government has ignored that factor.

At the council meeting, December 8, 1962, in Fargo, North Dakota, the council passed a motion that a medical advisory committee be set up to help determine the policy of the health units from a list submitted by the medical association. And it was decided by the council that if enabling legislation for the community mental health service units is introduced, that the proposed legislation include a section that the Committee on Mental Health of the North Dakota State Medical Association be the advisory committee to the mental health service units and, further, that the Committee on Mental Health approve of any medical program before its implementation.

At that point, the Legislative Committee took over. We had our first meeting in Bismarck in January and Dr. O. W. Johnson, chairman, and Dr. Dahl, vice-chairman, of the Legislation Committee were present. We went over the Community Mental Health Service Units Bill and the motion passed by the council, and this was agreeable to the Legislative Committee.

Regarding Senate bill No. 320 to transfer the state hospital to the state health department, we agreed in principle with this bill at that time. However, when we saw this bill it was very long with a lot of legal technicalities. This bill was not printed until about two days before the deadline of the House and Senate. It takes a lot of study to go over a bill of this length. The attorney who drew up this bill did a good job. It gives you an idea of the size and complexity of these problems. We can not adopt a principle without knowing what is in the bill.

Difficulties arose about three-fourths of the way through the session when the Republican caucus decided that they would not go along with this transfer. It was the feeling of our committee at that time that something should be done. It was a Republican problem, not a Democratic problem. Consequently, telegrams went out to 16 members of the Legislative Committee. In addition to the committee, Drs. Larson, Gilsdorf, Johnson, Amos, and Samuelson were advised and were in attendance. Of the Legislative Committee membership of 16, there were 6 present and there were 2 proxies also, Dr. Johnson and one other that Dr. Dahl had procured. Four members of this committee were out of the state. We did have 50 per cent present when we included the proxies and the eminent physicians present in whom the House of Delegates has a great deal of confidence. Dr. Mahoney was not called to this meeting, as our problem was with the Republican party and in the House. That is where the situation had to be corrected. I have every respect for Dr. Mahoney and his ability to speak for his own ideas. I think he should respect our rights and privileges of speaking also.

In Bismarck we had those physicians present and we had the majority leader of the House, the majority leader of the Senate, the speaker of the House, and several other senators present. It was obvious that the Republican House was in no mood to make this transfer. I have no brief to hold with either the Republicans or Democrats at this time. I think they are both wrong. We are interested in the care of these patients and that their families can know that they are getting good medical care. If the transfer occurred, the merit system would not apply to the state hospital. The merit system would attempt to be preserved in the public health department.

A political solution to this is not the right solution. Approximately, these amendments were proposed:

1. The board of administration would be enlarged to 7 members, of which would be the state health officer, Dr. Amos, and the attorney general, because of the legal aspects due to the commitment of these patients.

2. That a medical council be set up composed of 3 physicians, one of whom, as chairman of the Council, would be the director of the Mental Health Division of the State Health Department, Dr. Samuelson. Two other physicians would be selected by the governor on the basis of nominees given by the medical association. The medical policy would be determined by the medical council to be carried out by the state hospital.

That, to me, is medical direction. That, to me, is the principle for which we are striving. A mere transfer does not mean good medical care. Proper medical direction has to be present. These amendments were agreed to by each of the physicians present and were agreed to by the senators present. No objection was raised to these. Nevertheless, the next day Representative Haugland of Minot was very much in opposition to this. Maragos and Haugland opposed this in the House.

I was asked to appear before a Republican caucus on this subject. I told them most emphatically that the status quo that existed in the state hospital could not continue. These institutions must be divorced from politics and something must be done. I told them that the profession was willing to help carry out the activities of good medical care in the state. Our experience of state agencies in the past was such that statutory powers to this council or committee were mandatory. We have had some experience in the past. We did not propose that these physicians be a rubber stamp for something they had done or would try to cover up.

I think it is well to think about what the transfer would have done. It would have transferred this under the bill to the state health council, Dr. Amos, and to Dr. Samuelson. If this had been done, the merit system would not have applied to the state hospital. I think it is well known that medical direction and policy is essential. I think at the present time we have very good physicians on the health council. Dr. Owens and Dr. Gilliland are excellent public health doctors, as are Dr. Amos and Dr. Samuelson. I have grave doubts as to the future. None of us know who is going to occupy these positions next year or ten years from now. These are appointed by the governor. I would be willing to predict that within five or ten years, unless restraining legislation was put into the bill, that you would have the same problem. We have an excellent public health department now. I do not want to see it get into this mess on a political side now.

Legislation, for those individuals who have not experienced it, is a compromise, no one getting everything they ask for. No compromise was forthcoming; it was either a transfer or nothing. This was defeated in the House, passed in the Senate by more than a two-thirds majority. The Republicans voted for the amended bill, except for 2 individuals, and the Democrats voted against it solidly. I personally believe the governor lobbied against these amendments by appearing on the House floor the day these were brought up.

I think we are naive if we think any stand can be taken on any bill and not be subject to compromise. If you believe for one moment that this House can determine in November what is going to happen in January at the legislative session on the Hill, you are mistaken. The men on the spot have to make these decisions every day on the spot.

It has been said that this meeting was held without a quorum. However, Dr. Johnson appointed an executive committee to handle these things on the job. We did not have to call this committee to meet again, but we thought this was too important. We therefore called a meeting of all the committee, and 6 members of this committee were in attendance plus the 2 proxies and these other eminent physicians. I have no apology for this. I think there is a lack of interest shown, a lack of drive, or a lack of incentive when it comes to political affairs. Gentlemen: your medical life is at stake.

I think there is one way to resolve these matters. I would suggest that someone of the House make a motion that, hereafter, no physicians from Bismarck serve on the Legislative Committee. I am sure that will get you down to Bismarck to do some of the work."

The speaker thanked Dr. Peters and expressed the gratitude of the members for his explanation of what transpired at the Legislative Committee meeting in Bismarck.

Dr. Clayburgh, chairman of the Committee on COMPACT was called on to discuss federal legislation.

Dr. Clayburgh: "Within the past twelve months a lot has transpired. I think it is important to impress on us as a group that during the state Legislature we had some success and we should be proud of the efforts and results obtained last year on a national level. But, gentlemen, this will come up again in 1964.

Sometime ago I had the pleasure of hearing Dr. Annis tell of his meeting with Mr. Kerr. It was their feeling that the King-Anderson Bill would not be presented this year, because it would be better to push for a tax bill in 1963. It behooves us to tell the people the facts and the truth about federal-dominated medicine. This is the challenge that Dr. Annis is carrying to us, not to be asleep in 1963, to impress on the minds of our patients that, federally, this will all be back next year. Because, there is too much that can be used in a campaign. That is one point you should remember. Within the past year, due to activities in other brother organizations, we got involved in partisan politics. I have been told that 'we sure know socialized medicine is just around the corner, because more doctors are in politics.' The people wish to be advised as to what is best for them and the profession.

The resolution that has been suggested is an essential one, if we can get more people concerned about this prior to this coming up.

Another point I wish to bring up is the way you can get your point across when it has to do with our profession. You can do all the talking in your medical society, or in the Parent-Teachers Association, but unless you express your feelings through your political party, it won't be heard. In medicine we are free to act and decide, and we have had the training for that. But we fail to come up with some good suggestions to our political party, and we fail to participate in a political party, and unless you do, you are not going to get your ideas across.

If this country goes into a one-party system, this would be a welfare state. You can be assured that whether you take part in politics or not, whether you have a say, or do something or not, decisions are going to be made in Washington, D. C., every day about your life, your practice, your future, and the future of your children. They are being made every day whether you have anything to say or not . If you get into a political party, you will be able to make some of these decisions.

We should get to work to defend our two-party system and defend our country. We would like to have a good thorough discussion about AMPAC and COMPACT at the luncheon tomorrow noon at this hotel.

Thank you very much, Mr. Speaker."

The Speaker thanked Dr. Clayburgh and introduced Dr. E. J. Larson, whose remarks follow:

Dr. Larson: "Dr. Dodds, Dr. Boerth, and myself called on Dr. Spears in response to the motion that was introduced in the House. He is up and around and in fair health, and he enjoyed our visit very much. He is an interesting man to visit with and is very anxious to have anyone come to visit him who can. I am sure you will enjoy your visit if you go. He sends his regards to all the physicians at the meeting here today. He had always hoped that the annual meeting would be held in Dickinson and is so sorry he is unable to attend. I wish to express his sincere appreciation for the action of the House."

Speaker Christoferson expressed his thanks to the doctors for making the visit. He then asked if there was any new business to be brought before the House.

Dr. Little, in view of the fact that only board-certified physicians are eligible to care for children under the North Dakota Public Welfare Board Division of Crippled Children's Services, made a motion that the Committee on Crippled Children meet with the North Dakota Public Welfare Board in an attempt to get every licensed physician in the state eligible to care for children under the Crippled Children's Services Division.

He further moved that the Committee on Crippled Children review with the public welfare board its policy of referral of patients needing the services of medical and surgical specialists, in particular letting the referring physician send the patients to the specialist of his and the patient's choice and not one picked by the welfare board's Division of Crippled Children's Services. The motion was seconded by Dr. Schneider.

Dr. Vinje remarked that this problem had been brought up before and that with federal funds involved there are certain qualifications required to perform this function. He felt that the approach would have to go farther than just within the state.

The motion was passed.

Dr. Vinje moved that the dues remain at $100 per year. Motion seconded by Dr. Tudor and carried.

Dr. C. J. Glaspel was asked for a report from the State Board of Medical Examiners.

Dr. Glaspel: "Mr. Speaker and members of the House. The office of secretary of the State Board of Medical Examiners was transferred to Bismarck, North Dakota, as of January, 1962. This transfer was a logical one which I have been advocating for some years. It affords the opportunity for the board to work in close co-operation with the medical association.

It is quite common for many boards to employ a lay person as executive secretary. We appreciate that a lay person cannot make medical decisions, and in the future you will usually have to have a physician on the board close at hand to work with and cooperate with Lyle Limond.

Medical boards are made up of doctors; doctors are human beings, and human beings are not infallible. All boards throughout the United States do make errors. They occasionally pass physicians who should fail and, likewise, fail physicians who should pass.

The office of secretary of a medical board has many problems. Since some are disciplinary in nature and since requests which are contrary to medical statute must be denied, a limited amount of ill will may develop.

I am sure that about 80 to 90 per cent of the work with the board has to do either directly or indirectly with the foreign physicians. I hope you will all read the report of the Committee on Foreign Trained Physicians in the Handbook. It contains statistics and data relative to the number of foreign graduates in the United States and the problems they are creating as interns and residents. Reading this will enable you to answer some charges that are hurled against medical boards to the effect that they have been unfair to foreign physicians. You will note that the North Dakota board has treated them with dignity, fairness, and respect.

After having served on the medical board since 1941, either as a member or as secretary, my tenure of office will terminate in July. I shall continue, in an unofficial manner, to be interested in the complicated problems of medical licensure.

The opportunity I have had to meet all physicians entering North Dakota to practice has been a rewarding experience. I have enjoyed meeting many board members from other states through the Federation of United States Medical Boards. Some of these men have become my best friends.

I am grateful for the constructive cooperation and the courtesy always accorded me by the House of Delegates."

Dr. Naegeli repeated the invitation from the Northwest District Medical Society to hold the next annual meeting of the state association in Minot. The speaker announced that the meeting would be held there the Saturday preceding the first Sunday in May 1964. He said any invitations for a meeting place in May 1965 would be entertained. The association was invited by Dr. Painter, on behalf of the Third District, to meet in Grand Forks in 1965.

Dr. Sandmeyer moved that the invitation to meet in Grand Forks in 1965 be accepted. Motion seconded by Dr. Baumgartner and carried.

The next order of business was the report of the Nominating Committee.

Dr. Lund: "Before I give you the report of the Nominating Committee, I wish to tell you the essence of a phone call from Dr. Wright. He was on his way to this meeting and had serious car trouble so he will not be able to make the trip.

As you know, Dr. Wright has been your delegate to the American Medical Association for twelve years. He has a deep interest in private enterprise and the practice of private medicine. When I first went to Williston, he led a fight, single-handed, against a co-op clinic in Williston. This did not take long, and it failed in no uncertain terms. It was a joy and inspiration to us to see what one man could do. He will always be a foe of anything that smacks of socialized medicine.

He wanted me to thank you for the co-operation that has been given him in the work he has carried on with the American Medical Association. He has always been active in committees and probably will always be as long as he lives. Will you please accept Dr. Wright's profound thanks."

The following is the report of the Nominating Committee:

Second Vice-President	G. W. Toomey, Devils Lake
Speaker of the House of Delegates	L. A. Christoferson, Fargo
Vice-Speaker of the House	C. H. Peters, Bismarck
Delegate to the A.M.A	T. E. Pederson, Jamestown
Alternate Delegate to the A.M.A.	R. C. Painter, Grand Forks

COUNCILLORS

Terms expiring in 1963

Fourth District	F. D. Naegeli, Minot
Fifth District	G. Christianson, Valley City
Tenth District	R. W. McLean, Hillsboro
Councillor at Large	E. J. Larson, Jamestown

BOARD OF MEDICAL EXAMINERS

The following 9 names to be submitted to the governor for the 3 physicians whose terms expire in 1963:

C. J. Klein	Valley City
K. Vandergon	Grand Forks
G. L. Countryman	Grafton
R. C. Painter	Grand Forks
Ralph Leigh	Grand Forks
J. A. Sandmeyer	Grand Forks
J. D. Craven	Williston
D. R. Strinden	Williston
C. M. Lund	Williston

The members were asked if there were any additional nominations for any of these positions; if not, a motion would be entertained that the nominees be elected.

Dr. Nugent moved that the nominations be closed. Motion seconded by Dr. Painter and carried and the nominees on the nominating report were unanimously elected.

Dr. Lund was asked by the speaker for nominees for the offices of president, president-elect, and first vice-president, adding that it was his understanding that these nominees should be voted on at that time.

Dr. Lund presented the following nominees: president, Amos Gilsdorf, Dickinson; president-elect, G. A. Dodds, Fargo; and first vice-president, J. D. Craven, Williston.

Dr. Nugent moved that the nominations be closed and the secretary be instructed to cast an unanimous ballot for the election of the nominees. Motion seconded by Dr. Tudor and carried.

An announcement was made that the council would meet directly after the close of the meeting.

There being no further business, the meeting was adjourned at 4:00 P.M.

Scientific Program

MONDAY, MAY 6

Auditorium, Trinity High School, Dickinson

8:30 A.M.—Registration

8:30 to 9:00 A.M.—Scientific film

9:15 to 9:30 A.M.—Welcome from Mr. George Letvin, mayor of Dickinson, and Dr. A. R. Gilsdorf, President, Southwestern District Medical Society

9:30 to 10:00 A.M.—"Office Cardiology," Dr. G. H. Heidorn, Minot

10:00 to 10:30 A.M.—"Checking Tensions in Cardiac Patients," Dr. C. A. Hamilton, Bismarck

10:30 to 11:00 A.M.—Intermission

11:00 to 11:30 A.M.—"Myocardial Disease," Dr. E. C. Rosenow, Jr., Philadelphia, Pa. (Sponsored by Wyeth Laboratories)

11:30 to 12:00 noon—"Surgical Aspects of Heart Disease," Dr. C. Walton Lillehei, Minneapolis, Minn. (Sponsored by North Dakota Heart Association)

NOON RECESS

2:00 to 2:45 P.M.—"The Application of Recent Advances in Methodology to Cardiovascular Diagnosis," Dr. John Ross, Jr., Bethesda, Maryland (Sponsored by North Dakota State Department of Health)

2:45 to 3:30 P.M.—Intermission

3:30 to 4:30 P.M.—Panel discussion. Subject: "Coronary Heart Disease." Moderator: Dr. E. C. Rosenow, Jr.; members: Drs. G. H. Heidorn, John Ross, Jr., C. Walton Lillehei, and C. A. Hamilton.

TUESDAY, MAY 7

8:30 A.M.—Registration

8:45 to 9:15 A.M.—Scientific film

9:15 to 9:45 A.M.—"Fibrocystic Disease of the Pancreas," Dr. L. G. Pray, Fargo

9:45 to 10:30 A.M.—"Surgical Problems of the Biliary Tract," Dr. N. Frederick Hicken, Salt Lake City, Utah (Sponsored by Eli Lilly and Company, Indianapolis, Ind.)

10:30 to 11:00 A.M.—Intermission

11:00 to 11:45 A.M.—"Laboratory Evaluation of Liver Function," Dr. James D. Barger, Phoenix, Arizona (Supported by a grant from the Merck Sharp and Dohme postgraduate program)

11:45 to 12:15 noon—"The Saskatchewan Story," Dr. Lewis M. Brand, Saskatoon, Saskatchewan, Canada.

NOON RECESS

2:00 to 2:45 P.M.—"The Use of Psychotropic Drugs," Dr. Harold Martin, Rochester, Minn. (Sponsored by Smith Kline and French Laboratories)

2:45 to 4:00 P.M.—Panel Discussion. Subject: "Depressions." Moderator: Dr. R. O. Saxvik, Bismarck; members: Drs. Harold Martin, Rochester, Minn., A. F. Samuelson, Bismarck, and Angus H. Bowes, Grand Forks.

North Dakota State Medical Association Roster—1963

MEMBERSHIP BY DISTRICTS

First District

Amidon, Blaine F.	Dakota Clinic, Fargo
Bacheller, Stephen C.	Enderlin
Bakke, Hans	Lisbon
Barnard, Donald M.	Fargo Clinic, Fargo
Beithon, Elmer J.	Red River Valley Clinic, Wahpeton
Beithon, Paul J.	Red River Valley Clinic, Wahpeton
Beithon, R. Bruce	Red River Valley Clinic, Wahpeton
Beltz, Melvin E.	Wahpeton Clinic, Wahpeton
Borland, Verl G.	Fargo Clinic, Fargo
Burt, Arthur C.	Medical Arts Bldg., Fargo
Christoferson, Lee A.	702 First Ave. S., Fargo
Christu, Chris M.	Fargo Clinic, Fargo
Crim, Eleanor M.	1701 Thirteenth St. S., Fargo
Darrow, Kent E.	Dakota Clinic, Fargo
De Cesare, Francis A.	Dakota Clinic, Fargo
Dillard, James R.	Medical Arts Bldg., Fargo
Dodds, G. Alfred	Fargo Clinic, Fargo
Donat, T. L.	Dakota Clinic, Fargo
Engstrom, Perry H.	Red River Valley Clinic, Wahpeton
Fercho, Calvin K.	Medical Arts Bldg., Fargo
Fortney, Arthur C.	Fargo Clinic, Fargo
Foster, George C.	15 Broadway, Fargo
Geib, Marvin J.	702 First Ave. S., Fargo
Geston, Robert L.	402 Sheyenne St., West Fargo
Gillam, John S.	Fargo Clinic, Fargo
Goff, John R.	Fargo Clinic, Fargo
Goltz, Neill F.	Fargo Clinic, Fargo
Gross, Richard M.	Fargo Clinic, Fargo
Gustafson, Maynard B.	702 First Ave. S., Fargo
Hager, Jerome P.	Hankinson
Hall, G. Howard	Fargo Clinic, Fargo
Hamilton, Thomas M.	Fargo Clinic, Fargo
Haynes, George H.	Lisbon
Hawn, Hugh W.	624 Gate City Bldg., Fargo
Heilman, Charles O.	Fargo Clinic, Fargo
Houghton, James F.	Dakota Clinic, Fargo
Hunter, C. M.	Medical Arts Bldg., Fargo
Hunter, G. Wilson	Fargo Clinic, Fargo
Irvine, Vincent S.	Lidgerwood
Ivers, George U.	424 de Lendrecie Bldg., Fargo
Ivers, Robert R.	702 First Ave. S., Fargo
Jaehning, David G.	Hotel Wahpeton, Wahpeton
Kelly, William A.	Medical Arts Bldg., Fargo
Kohlmeyer, Albert C.	702 First Ave. S., Fargo
Kulland, Roy E.	402 Sheyenne St., West Fargo
Lancaster, W. E. G.	Fargo Clinic, Fargo
Landa, Marshall	Dakota Clinic, Fargo
Larson, G. Arthur	Medical Arts Bldg., Fargo
Lawrence, Donald H.	Medical Arts Bldg., Fargo
LeBien, Wayne E.	Fargo Clinic, Fargo
LeMar, John D.	Fargo Clinic, Fargo
Lewis, A. K.	Lisbon
Lewis, T. H.	302 Black Bldg., Fargo
Lindsay, Douglas T.	Fargo Clinic, Fargo
Long, William H.	Dakota Clinic, Fargo
Lytle, Francis T.	Fargo Clinic, Fargo
Macaulay, Warren L.	Fargo Clinic, Fargo
Madison, James F.	Fargo Clinic, Fargo
Magill, Gordon B.	Medical Arts Bldg., Fargo
Magness, John L.	Dakota Clinic, Fargo
Mazur, B. A.	Dakota Clinic, Fargo
Melton, Frank M.	Dakota Clinic, Fargo
Miller, Herbert H.	509½ Dakota Ave., Wahpeton
Miller, Joseph W.	Dakota Clinic, Fargo
Murray, James B.	Dakota Clinic, Fargo
Nagle, Duane W.	Fargo Clinic, Fargo
Nicholson, Richard W.	R.R. No. 2, Moorhead, Minn.
Norum, Henry A.	Fargo Clinic, Fargo
Owens, Walter L.	Dakota Clinic, Fargo
Poindexter, Marlin H., Jr.	Fargo Clinic, Fargo
Poole, Ernest E.	Sasse Bldg., Lidgerwood
Pray, Laurence G.	Fargo Clinic, Fargo
Rogers, Robert G.	Dakota Clinic, Fargo
Schleinitz, Fritz B.	Hankinson
Schneider, Joseph F.	Medical Arts Bldg., Fargo
Sedlak, O. A.	109 Roberts St., Fargo
Seifert, Richard H.	Medical Arts Bldg., Fargo
Sessums, John V., Jr.	Dakota Clinic, Fargo
Shook, Lester D.	Fargo Clinic, Fargo
Spier, J. J.	1345 N. Fifth St., Fargo
Stafne, William A.	Fargo Clinic, Fargo
Story, Robert D.	Fargo Clinic, Fargo
Swanson, Joel C.	407 Black Bldg., Fargo
Thompson, George R.	Fargo Clinic, Fargo
Traynor, Mack V.	Fargo Clinic, Fargo

Triggs, Perry O.	Fargo Clinic, Fargo
Ulmer, Robert J.	Dakota Clinic, Fargo
Veitch, Abner	502 Oak St., Lisbon
Wall, Wendell H.	Wahpeton Clinic, Wahpeton
Wasemiller, E. R.	Wahpeton Clinic, Wahpeton
Webster, William O.	Fargo Clinic, Fargo
Weible, Ralph D.	Dakota Clinic, Fargo
Wenz, E. P.	Dakota Clinic, Fargo
Weyers, Henry J.	Medical Arts Bldg., Fargo
Williams, N. S.	Dakota Clinic, Fargo
Wiltse, Glenn L.	Wahpeton Clinic, Wahpeton
Wold, Lester E.	Fargo Clinic, Fargo
Zauner, Richard J.	Medical Arts Bldg., Fargo

Second District

Cook, Stuart J.	Rolette
Corbett, Conner A.	Lake Region Clinic, Devils Lake
Coultrip, Raymond L., Jr.	McVille
Cuadrado, Angel R.	North Dakota State Tuberculosis Sanatorium, San Haven
Engesather, John A. D.	Lakota
Eylands, Jon V.	Rugby
Fawcett, John C.	Lake Region Clinic, Devils Lake
Fawcett, Robert M	Lake Region Clinic, Devils Lake
Fox, William R.	Johnson Clinic, Rugby
Gilchrist, Milton R.	2288 Overlook Drive, Minneapolis
Gorrie, William A.	Maddock
Hilts, George H.	Cando
Isabey, Amedee	Rolla Clinic, Rolla
Johnson, Christian G.	Johnson Clinic, Rugby
Keller, Emil T.	Johnson Clinic, Rugby
Kihle, Kenneth W.	Bottineau
Lazarek, I. L.	411 Fourth Ave., Devils Lake
Longmire, L. T.	411 Fourth Ave., Devils Lake
Lund, A. B.	Leeds
McBane, Robert D.	Lake Region Clinic, Devils Lake
McCullough, William F.	Bottineau
McIntyre, Donald G.	Johnson Clinic, Rugby
Mahoney, James H.	411 Fourth Ave., Devils Lake
Mari, Justo L.	Bottineau
Martin, George V.	Michigan Clinic, Michigan
Miller, C. Robert	1207 Bennett, Bottineau
Munro, J. A.	Rolla
Neuenschwander, Allen R.	Rolla
Owens, Clarence G.	New Rockford
Palmer, Dolson W.	Cando
Pine, Louis F.	Lake Region Clinic, Devils Lake
Sawchuk, John	Rolette
Schwinghamer, E. J.	New Rockford
Seibel, Glenn W.	New Rockford
Sihler, William F.	Mann Block, Devils Lake
Terlecki, Jaroslaw	Minnewaukan
Toomey, Glenn W.	Lake Region Clinic, Devils Lake
Towarnicky, M. J.	Fessenden
Voglewede, William C.	Carrington

Third District

Barrie, James G.	Park River
Benson, T. Q.	1600 University Ave., Grand Forks
Bowes, H. Angus	1600 University Ave., Grand Forks
Campbell, Duncan W.	221 S. Fourth St., Grand Forks
Clark, Rodney	Grand Forks Clinic, Grand Forks
Clayburgh, Bennie J.	Grand Forks Clinic, Grand Forks
Countryman, G. L.	1004 Hill Ave., Grafton
Culmer, A. E., Jr.	501 First National Bank Bldg., Grand Forks
Dailey, Walter C.	Valley Medical Assoc., Grand Forks
DeLano, Robert H.	Northwood
Doss, R. Douglas	1600 University Ave., Grand Forks
Eaton, L. P.	Grafton Clinic, Grafton
Evans, Harold W.	Grand Forks Clinic, Grand Forks
Flaten, Alfred N.	Edinburg
Frey, Wellde W.	Drayton
Glaspel, Cyril J.	Grafton Clinic, Grafton
Goehl, R. O.	Grand Forks Cliinc, Grand Forks
Graham, C. M.	1600 University Ave., Grand Forks
Graham, John H.	15½ S. Third, Grand Forks
Grinnell, Ernest L.	Grand Forks Clinic, Grand Forks
Hardy, Nigel A.	Minto
Harwood, Theodore H.	University of North Dakota, Grand Forks
Haugen, C. O.	Larimore
Haunz, Edgar A.	Grand Forks Clinic, Grand Forks
Helenbolt, Kenneth S.	1600 University Ave., Grand Forks
Helgason, Norman M.	Cavalier
Helm, Richard K.	27½ S. Third St., Grand Forks
Hill, Frank A.	Grand Forks Clinic, Grand Forks
Jensen, August F.	1600 University Ave., Grand Forks
Johanson, John F.	Cavalier
Kaluzniak, Nicholas	Langdon
Kana, Dale C.	Grafton Clinic, Grafton
Keig, William P., Jr.	1600 University Ave., Grand Forks
Krahn, Henry	Walhalla
Lambie, John A.	Grand Forks Clinic, Grand Forks
Landry, L. H.	Walhalla
Larson, Eric J.	Cavalier
Leigh, James A.	111 N. Fifth St., Grand Forks
Leigh, Ralph E.	111 N. Fifth St., Grand Forks
Leigh, Richard H.	1600 University Ave., Grand Forks
Levine, Leonard	Grand Forks Clinic, Grand Forks
Lorentson, Carl E.	Grand Forks Clinic, Grand Forks
McLeod, John	Grand Forks Clinic, Grand Forks
Mahowald, Ralph E.	1400 Grand Ave., Grand Forks
Mann, Hamish	1600 University Ave., Grand Forks
Marshall, Robert A.	27 S. Third St., Grand Forks
Meredith, William C.	Drayton
Muus, Jacob M.	McVille
Muus, O. Harold	Commercial Exchange, Grand Forks
Natarajan, Rangasamy	1600 University Ave., Grand Forks
Nelson, Wallace W.	Grand Forks Clinic, Grand Forks
Nelson, William C.	Grand Forks Clinic, Grand Forks
Obert, Gerard J.	University of North Dakota, Grand Forks
O'Toole, James K.	5224 W. Nineteenth Street Terrace, Topeka, Kansas
Painter, Robert C.	Grand Forks Clinic, Grand Forks
Panek, A. F.	Milton
Peake, Frances M.	204 Widlund Bldg., Grand Forks
Penners, John H.	Grand Forks Clinic, Grand Forks
Peterkin, Frank D.	Langdon
Pettit, Samuel L.	Grand Forks Clinic, Grand Forks
Piltingsrud, Harold R.	Park River
Porter, Charles B.	Grand Forks Clinic, Grand Forks
Powers, William T.	Valley Medical Associates, Grand Forks
Prochaska, Leonard J.	517 First National Bank Bldg., Grand Forks
Rand, Charles C.	Grafton
Ruud, John E.	First National Bank Bldg., Grand Forks
Sandmeyer, John A.	Grand Forks Clinic, Grand Forks
Saiki, A. K.	University of North Dakota, Grand Forks
Sande, C. W.	Northwood
Schafer, Thomas	Grand Forks Clinic, Grand Forks
Scheflo, Myron W.	1004 Hill Ave., Grafton
Silverman, Louis B.	Grand Forks Clinic, Grand Forks

Szyrynski, Victor	University of North Dakota, Grand Forks
Tarpley, Harold L.	Valley Medical Associates, Grand Forks
Teevens, William P.	Grafton Clinic, Grafton
Thorgrimsen, G. G.	1600 University Ave., Grand Forks
Tompkins, C. R.	1004 Hill Avenue, Grafton
Vandergon, Keith G.	1400 Grand Ave., Grand Forks
Wasdahl, Walter	University of North Dakota, Grand Forks
Webber, Freeman B.	Harvey
Wilson, George A.	Grand Forks Clinic, Grand Forks
Wontat, Philip H.	Grand Forks Clinic, Grand Forks
Youngs, Nelson A.	Grand Forks Clinic, Grand Forks

Fourth District

Allport, F. W.	Towner
Amstutz, Kenneth N.	Northwest Clinic, Minot
Ayash, John J.	123 Second Ave. S.E., Minot
Bermudez, Enrique	Garrison Clinic, Garrison
Blatherwick, Robert	Parshall
Boyle, John T.	Garrison
Boyum, Lowell E.	Harvey Medical Center, Harvey
Breslich, Paul J.	Northwest Clinic, Minot
Briggs, Brian E.	401 S. Main St., Minot
Cameron, Angus L.	Northwest Clinic, Minot
Cameron, A. Malcolm	Northwest Clinic, Minot
Devine, John Leo, Jr.	Great Plains Clinic, Minot
Dormont, Richard E.	Northwest Clinic, Minot
Erenfeld, Fred R.	617 Second St. N.W., Minot
Fischer, V. J.	Medical Arts Clinic, Minot
Flath, Milford G.	Stanley
Flickinger, Dale B.	Medical Arts Clinic, Minot
Gammell, Robert T.	Kenmare
Garrison, M. W.	Garrison Bldg., Minot
Giltner, Lloyd A.	Medical Arts Clinic, Minot
Goodman, Robert	Powers Lake
Gozum, Ekrem	123 Second Ave. S.E., Minot
Greene, E. E.	Westhope
Halliday, David J., Jr.	Kenmare
Halverson, C. H.	401 S. Main St., Minot
Hammargren, August F.	Harvey Medical Center, Harvey
Hart, George M.	Northwest Clinic, Minot
Heidorn, Guenther H.	315 S. Main St., Minot
Hoopes, Lorman L.	17A S. Main St., Minot
Hordinsky, Bohdan Z.	Drake
Huntley, Wellington B.	Great Plains Clinic, Minot
Hurly, William C.	Medical Arts Clinic, Minot
Jayapathy, B.	123 Second Ave. S.E., Minot
Johnson, O. W.	Johnson Clinic, Rugby
Kermott, Louis H., Jr.	401 S. Main St., Minot
Kohl, D. L.	123 Second Ave. S.E., Minot
Lampert, M. T.	407 First National Bank Bldg., Minot
LaRochelle, William D.	Stanley
Larson, Richard S.	Velva
Leonard, Kenneth O.	U. S. Navy Hospital, Key West, Florida
Leonard, Kermit	Garrison
London, Carl B.	Northwest Clinic, Minot
Morrow, Kenneth A.	123 Second Ave. S.E., Minot
Naegeli, Frank D.	Northwest Clinic, Minot
Nazli, Mehmet	St. Joseph's Hospital, Minot
Olson, Burton G.	McCannel Clinic, Minot
Richardson, Gale R.	12 Tenth St. S.W., Minot
Rioux, Berchmans	214 S. Main, Minot
Rowe, Paul H.	Northwest Clinic, Minot
Sahl, Jens, Jr.	Northwest Clinic, Minot
Shea, Samuel E.	McCannel Clinic, Minot
Sorenson, Alfred R.	Medical Arts Clinic, Minot
Sorenson, Roger	Medical Arts Clinic, Minot
Uthus, O. S.	21½ Second Ave. S.E., Minot
Veenbaas, Fred F.	Northwest Clinic, Minot
Wall, Willard W.	Northwest Clinic, Minot
Wallis, Marianne	St. Joseph's Hospital, Minot
Wilson, Herbert J.	New Town

Fifth District

Christianson, Gunnar	117 N.W. Third St., Valley City
Feist, Donald J.	Forman
Goven, John W.	117 N.W. Third St., Valley City
Jensen, Clayton E.	117 N.W. Third St., Valley City
Jensen, Warren R.	117 N.W. Third St., Valley City
Klein, C. J.	117 N.W. Third St., Valley City
Macdonald, Alexander C.	130 Central Ave. S., Valley City
Macdonald, Neil A.	130 Central Ave. S., Valley City
Merrett, Joseph P.	117 N.W. Third St., Valley City
Van Houten, J.	105 Main St. W., Valley City

Sixth District

Amos, James R.	North Dakota Health Department, Bismarck
Anderson, Freedolph E.	Underwood
Arneson, Charles A.	Cowan Bldg., Bismarck
Baumgartner, Carl J.	Quain & Ramstad Clinic, Bismarck
Berg, H. Milton	Quain & Ramstad Clinic, Bismarck
Berg, Roger M.	Quain & Ramstad Clinic, Bismarck
Berthean, Herman J.	Linton
Boerth, Edwin H.	Workmen's Compensation Bureau, Bismarck
Brink, Norvel O.	Quain & Ramstad Clinic, Bismarck
Buckingham, T. W.	405½ Broadway, Bismarck
Buckingham, William M.	Capital City Clinic, Bismarck
Cartwright, John T.	Missouri Valley Clinic, Bismarck
Cleary, Joseph W.	Missouri Valley Clinic, Bismarck
Curiski, Adolfs A.	Elgin
Dahl, Phillip O.	Missouri Valley Clinic, Bismarck
Daniolos, Demetrios P.	Quain & Ramstad Clinic, Bismarck
Diven, Wilbur L.	402½ Main St., Bismarck
Dunnigan, Ralph J.	Capital City Clinic, Bismarck
Eriksen, Johan A.	Quain & Ramstad Clinic, Bismarck
Ewert, Arthur O.	Beulah
Fischer, Gerhard	Quain & Ramstad Clinic, Bismarck
Fischer, Hans H.	Quain & Ramstad Clinic, Bismarck
Fleck, Roland	Ashley
Fortman, Albert H., Jr.	Capital City Clinic, Bismarck
Frankel, John B.	Quain & Ramstad Clinic, Bismarck
Freise, Paul W.	Quain & Ramstad Clinic, Bismarck
Fricke, Roger W.	Quain & Ramstad Clinic, Bismarck
Gaebe, Otto C.	New Salem
Garrett, W. G.	Missouri Valley Clinic, Bismarck
Girard, Bernard A.	107 First Ave. N.W., Mandan
Goodman, Edward	Napoleon
Goughnour, Myron W.	Capital City Clinic, Bismarck
Gray, Howard R.	Quain & Ramstad Clinic, Bismarck
Gregware, Peter R.	Quain & Ramstad Clinic, Bismarck
Griebenow, Frederick	905 Ninth St., Bismarck
Gutowski, Franz	Wishek
Hamilton, Charles A.	Quain & Ramstad Clinic, Bismarck
Heffron, Maurice M.	405½ Broadway, Bismarck
Henderson, Robert W.	Capital City Clinic, Bismarck
Hetzler, Arnold E.	322 W. Main St., Mandan
Hilts, Joseph A.	104 Second Ave. N.W., Mandan
Icenogle, Grover D.	608 W. Thayer, Bismarck

Jacobson, M. S.	Elgin
Johnson, Kenneth J.	Quain & Ramstad Clinic, Bismarck
Johnson, Marlin J. E.	Quain & Ramstad Clinic, Bismarck
Johnson, Paul L.	Quain & Ramstad Clinic, Bismarck
Kalnins, Arnold	Washburn
Kling, Robert R.	Quain & Ramstad Clinic, Bismarck
Klosterman, Paul F.	Capital City Clinic, Bismarck
Knudsen, Jerry M.	Missouri Valley Clinic, Bismarck
Kuplis, Haralds	Turtle Lake
Larson, Leonard W.	Quain & Ramstad Clinic, Bismarck
Lindelow, Olaf V.	Missouri Valley Clinic, Bismarck
Lipp, George R.	502 W. Rosser, Bismarck
Lommen, Marwin A. K.	Capital City Clinic, Bismarck
McDade, F. D.	Turtle Lake
Montz, Charles R.	Quain & Ramstad Clinic, Bismarck
Moses, James J.	Quain & Ramstad Clinic, Bismarck
Nuessle, Robert F.	Quain & Ramstad Clinic, Bismarck
Nugent, Milton E.	Quain & Ramstad Clinic, Bismarck
Orchard, Welland J.	Linton
Owens, Percy L.	Missouri Valley Clinic, Bismarck
Perrin, Edwin D.	Quain & Ramstad Clinic, Bismarck
Peters, Clifford H.	Quain & Ramstad Clinic, Bismarck
Peterson, Alice H.	State Health Department, Bismarck
Pierce, W. B.	Quain & Ramstad Clinic, Bismarck
Pierson, R. Warren	Quain & Ramstad Clinic, Bismarck
Pitcher, Wayne H.	Quain & Ramstad Clinic, Bismarck
Ralston, Lloyd S.	Quain & Ramstad Clinic, Bismarck
Samuelson, Albert F.	Children's Psychiatric Center, Bismarck
Sauer, John P.	Missouri Valley Clinic, Bismarck
Saxvik, Russell O.	Quain & Ramstad Clinic, Bismarck
Schoregge, Robert D.	Quain & Ramstad Clinic, Bismarck
Smeenk, H. Pieter	Quain & Ramstad Clinic, Bismarck
Smith, Clyde L.	Missouri Valley Clinic, Bismarck
Spielman, George H.	1715 Avenue E East, Bismarck
Stangebye, T. L., Jr.	Quain & Ramstad Clinic, Bismarck
Thakor, S. J.	907 Griffin, Bismarck
Thompson, Arnold	Turtle Lake
Tudor, Robert B.	Quain & Ramstad Clinic, Bismarck
Vinje, Edmund G.	Hazen Clinic, Hazen
Vinje, Ralph	405 E. Broadway, Bismarck
Vonnegut, Felix F.	Linton
Waldschmidt, William D.	Quain & Ramstad Clinic, Bismarck
Weyrens, Peter J.	Hebron
Zukowsky, Anthony	Steele

Seventh District

Beall, John A.	320 First Ave. N., Jamestown
Bolliger, Eugene F.	Kulm
Clement, Duane	320 First Ave. N., Jamestown
Craychee, Walter A.	Oakes
Cukurs, Paul	State Hospital, Jamestown
Curtis, Philip B.	Medical Arts Clinic, Jamestown
DuMais, A. F.	404 Second Ave. S.E., Jamestown
Elsworth, John N.	DePuy-Sorkness Clinic, Jamestown
Evangelista, Teofilo	State Hospital, Jamestown
Fergusson, Victor D.	Edgeley
Gronewald, Tula W.	State Hospital, Jamestown
Hieb, Edwin O.	DePuy-Sorkness Clinic, Jamestown
Hogan, Clifford W.	DePuy-Sorkness Clinic, Jamestown
Jansonius, J. W.	Medical Arts Clinic, Jamestown
Jestadt, John J.	DePuy-Sorkness Clinic, Jamestown
Klassen, Rudolph A.	LaMoure Clinic, LaMoure
Larson, Ernest J.	DePuy-Sorkness Clinic, Jamestown
Lucy, Robert E.	DePuy-Sorkness Clinic, Jamestown
Melzer, Simon W.	Woodworth
Martin, Clarence S.	Medina
Meunier, H. J.	Oakes
Miles, James V., Jr.	119 Second Ave. S.E., Jamestown
Nierling, Richard D.	DePuy-Sorkness Clinic, Jamestown
Nolan, Robert B.	119 Second Ave. S.E., Jamestown
Oster, Ellis	Ellendale
Pederson, Thomas E.	DePuy-Sorkness Clinic, Jamestown
Rubbert, Duane	LaMoure Clinic, LaMoure
Sakai, Masahiro	State Hospital, Jamestown
Schmidhofer, Ernst	State Hospital, Jamestown
Schmidt, Donald J.	Gackle
Sorkness, Joseph	DePuy-Sorkness Clinic, Jamestown
Swafford, Gerald R.	DePuy-Sorkness Clinic, Jamestown
Swenson, John A.	DePuy-Sorkness Clinic, Jamestown
Turner, Neville W.	885 Longview Road, Hillsborough, California
Van der Linde, John M.	Medical Arts Clinic, Jamestown
Van Houten, Richard W.	Oakes
Woodward, Robert S.	DePuy-Sorkness Clinic, Jamestown

Eighth District

Berg, Milton O.	Tioga
Borrud, Chester C.	Harmon Park Clinic, Williston
Craven, John P.	411 Main St., Williston
Craven, Joseph D.	411 Main St., Williston
Ellis, Gordon E.	Harmon Park Clinic, Williston
Fennell, William L.	Crosby
Hagan, Edward J.	411 Main St., Williston
Johnson, Alan K.	Williston Clinic, Williston
Korwin, J. J.	120 Main St., Williston
Lund, Carroll M.	Williston Clinic, Williston
McPhail, Clayton O.	Crosby
Oliver, Donald C.	Watford City
Olson, Robert J.	1302 Thirteenth Ave. W., Williston
Petty, Charles R.	411 Main St., Williston
Skjei, Donald E.	Williston Clinic, Williston
Strinden, Dean R.	Harmon Park Clinic, Williston
Walker, H. Charles, Jr.	411 Main St., Williston
Wiederanders, R. E.	Harmon Park Clinic, Williston
Wright, Willard	Williston Clinic, Williston

Ninth District

Ahlness, Paul	Bowman
Bush, Clarence A.	Beach
Carter, Robert G.	Hettinger
Dukart, Ralph J.	Dickinson Clinic, Dickinson
Foster, Keith G.	Rodgers-Gumper Clinic, Dickinson
Gilliland, Robert F.	Dickinson Clinic, Dickinson
Gilsdorf, Amos R.	Dickinson Clinic, Dickinson
Guloien, Hans E.	Dickinson Clinic, Dickinson
Gumper, Arnold J.	109 Seventh St. W., Dickinson
Hanewald, Walter C.	Rodgers-Gumper Clinic, Dickinson
Hankins, Robert E.	Mott
Hill, S. W.	Regent
Larsen, Harlan C.	109 Seventh St. W., Dickinson
Maercklein, Otto C.	Mott
Nicely, Donald A.	Rodgers-Gumper Clinic, Dickinson
Ordahl, Norman B.	109 Seventh St. W., Dickinson
Raasch, Richard F.	30 W. Eighth St., Dickinson
Reichert, Donald J.	24 W. Villard, Dickinson
Reichert, H. Lawrence	24 W. Villard, Dickinson
Retzer, Paul G.	Hettinger
Sawchuk, Andrew C.	Dickinson Clinic, Dickinson
Schumacher, William A.	12102 Silver Fox Road, Los Alamitos, California
Skwarok, Walter S.	Hebron
Slominski, Henry	Richardton
Smith, Oscar M.	P.O. Box 1188, Dickinson

Spear, Albert E.	610 First Ave. W., Dickinson
Thom, Robert C.	Bowman

Tenth District

Dekker, Omar D.	Finley
LaFleur, Harold A.	Mayville
Little, James M.	Mayville
Little, Roy C.	Mayville
McLean, Robert W.	Hillsboro
Mergens, Daniel N.	Hillsboro
Odegard, Russell L.	Hatton
Oja, Karl F.	Portland
Wakefield, Kenneth M.	Cooperstown

TRANSACTIONS OF THE SEVENTEENTH ANNUAL MEETING OF THE WOMAN'S AUXILIARY TO THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

Dickinson, May 4, 5, and 6, 1963

The opening session of the seventeenth annual meeting of the Woman's Auxiliary to the North Dakota State Medical Association was held at the Hospitality Room, Liberty National Bank, Dickinson, at 9:30 A.M., Monday, May 6, 1963. Presiding was Mrs. John W. Jansonius, state president.

The pledge of loyalty was led by Mrs. Robert Hankins, president-elect. The invocation was given by Mrs. Clyde Smith, first vice-president.

Mrs. Harlan Larsen, Dickinson, extended a welcome to the convention. The response was given by Mrs. John M. Van der Linde, Jamestown.

Mrs. Robert Hankins, Mott, and Mrs. Robert Gilliland, Dickinson, were in charge of the memorial service. A short tribute was read and candles were lighted in memory of Mrs. Edwin H. Boerth and Dr. Anna Gutowski. This was followed by a vocal solo, "Elegie," by Mrs. Hankins accompanied by Mrs. Gilliland.

Mrs. Jansonius then introduced the honored guest, Mrs. Richard A. Sutter, St. Louis, Missouri, regional vice-president of the Woman's Auxiliary to the American Medical Association; also introduced was the page for the convention, Mrs. John Jestadt, Jamestown. In introducing Dr. E. J. Larson, president of the North Dakota State Medical Association, Mrs. Jansonius said, "Honor is never the reward for what one receives, but for what one gives" and referred to Dr. Larson as "our man of the year."

Dr. Larson complimented Mrs. Jansonius on her address before the House of Delegates and the leadership she has shown in the past year. He brought greetings from the North Dakota State Medical Association and extended their thanks to the auxiliary, which in seventeen years has proved to be such "a fine active group."

Dr. Larson went on to tell of an article in the April 27, 1963, issue of *The Saturday Evening Post* entitled, "Profile of a Bookmaker," in which it was claimed that doctors, lawyers, and other professional men were the bookmaker's best customers. Dr. Larson said that to combat this type of slander we must have better thought-out and directed publicity. It is Dr. Larson's hope that the people "will eventually learn the difference between a chiropractor and a doctor, an optometrist and an ophthalmologist." He feels that AMPAC and COMPACT are organized to present this material and put on a concentrated campaign. Both AMPAC and COMPACT are anxious to have the ladies join, and Dr. Larson announced the AMPAC meeting in Chicago May 14 to 18 and hoped the auxiliary might send a delegate. He feels that no one should be in the healing arts without a fundamental medical education and that health care should be in the hands of a physician.

The following members answered the secretary's roll call:

State officers: Mrs. John W. Jansonius, president; Mrs. Robert E. Hankins, president-elect; Mrs. Clyde L. Smith, first vice-president; Mrs. R. L. McFadden, recording secretary, and Mrs. Roger M. Berg, treasurer.

Committee chairmen: Mrs. E. J. Larson, parliamentarian; Mrs. Oliver Spielman, historian; Mrs. E. T. Keller, American Medical Association Education and Research Foundation; Mrs. Walter Hanewald, health careers; Mrs. M. A. K. Lommen, publicity; Mrs. R. D. Schoregge, mental health; Mrs. James J. Moses, legislation; Mrs. Richard J. Zauner, civil defense; Mrs. Eylands, co-editor *News, Views, and Cues;* Mrs. G. R. Richardson, Student Loan Fund; Mrs. E. O. Hieb, finance.

District presidents: Mrs. John Jestadt, Jamestown.

Councillors: Mrs. R. Painter, Fargo; Mrs. Joseph Craven, Williston; Mrs. L. Raasch, Dickinson; Mrs. John M. Van der Linde, Jamestown; Mrs. R. Nuessle, Bismarck.

Delegates: Mrs. Richard J. Zauner, Mrs. John Goff, Mrs. Lee A. Christoferson, Fargo; Mrs. R. O. Saxvik, Bismarck; Mrs. Henry Slominski, Dickinson.

Convention rules of order were read by the parliamentarian, Mrs. E. J. Larson. Motion made, seconded, and passed unanimously for their adoption.

Mrs. Van der Linde made the motion that the minutes of the 1962 convention be approved as printed in THE JOURNAL-LANCET, February 1963. Motion carried.

The minutes of the pre-board meeting were read, corrected, and approved.

Mrs. Jansonius gave the president's report. She paid tribute to the board and thanked each district for their welcome to her and the fellowship shown. A special thanks went to Ninth District for flowers; to Stutsman County for appreciation for the harmony of working together and for flowers; to the Stutsman County Medical Society for her corsage of orchids; and to convention planners. She paid tribute to her family "who have played such a great part in making the year possible."

Mrs. Berg, treasurer, reported a balance of $2,005.42 as of April 30, 1963.

Mrs. Hankins reported a membership of 327 with 21 new members included.

Mrs. Keller reported for the American Medical Association Education and Research Foundation. She called attention to the fine exhibit from Chicago—note paper sent free of charge to sell for $1, double decks of playing cards costing $1.10 and selling for $2, and also appreciation cards which can be sent directly to the Education and Research Foundation chairman. Contributions total $740.30 to national headquarters. The top 3 Districts on per capita basis were Ninth District, First District, and Second District. Each received a certificate. Mrs. Keller made the following recommendation: "That each district continue with sale of note paper and playing cards and the use of memorial and appreciation cards. That each district plan their own ways and means of fund-raising projects for the American Medical Association E.R.F." This was seconded and passed unanimously.

The *Bulletin* reported 142 subscriptions, which gives the state a 42-plus percent. By-laws remained without revision. Mrs. Zauner reported for civil defense. Mrs. Hankins reported that more than 200 people in her area had enrolled in medical self-help classes.

Mrs. Hieb reported for the budget committee. The proposed budget for 1964 was $1,396.80. The motion was made for acceptance; it was seconded and passed unanimously.

Mrs. Hanewald reported for health careers. Four groups were represented at the fall convention of future nurses, one each from Bismarck, Mott, Jamestown, and Dickinson. She also told of a new future nurses club which was recently organized in Richardton.

Mrs. Spielman, historian, gave a brief summary of her report.

Mrs. Jansonius gave a summary of the SAMA report and showed a picture of the emblem, designed by a young woman in Grand Forks, which had won as choice for a national emblem.

Mrs. Schoregge reported for mental health. She said that the plans for Miles to Maturity had not been carried through.

Mrs. Eylands reported for *News, Views, and Cues*. Mrs. Lommen had several suggestions on publicity. These were tabled until the fall board meeting.

Mrs. Richardson reported for the student loan fund and made the following recommendations: "The committee moves that the name be changed to Medical Auxiliary Loan Fund and the amount be increased to $1,000 per loan, to be made available for any of the four years of medical school." This was seconded and passed unanimously. The amount of $2,379 had been collected for the year, bringing the approximate value of the loan fund to $26,456.81.

District presidents gave their reports.

Slides were shown to emphasize, "Image of the Doctor's Wife." Pictures on community service from Jamestown, Minot, and Fargo were shown.

Mrs. Smith spoke on program. Foods, fads and fancies was suggested as a topic. She mentioned that Mrs. Heffron had written a skit which had been used in Bismarck and that it was available to other districts as a suggested program. Mrs. Smith commented on the fact that "we are getting away from national program suggestions and into programs of interest in the local level." She reminded members of the auxiliary's purpose and suggested that the first meeting of each year be on orientation. Individually we are doing well, as a group not so well. Meeting adjourned.

KATHERINE M. MCFADDEN, Recording secretary

Treasurer's Report, Financial Statement, 1962-1963

Income:		
June 1, 1962, Balance on hand	$1,787.29	
State convention balance—1962	99.04	
Dues: 325 members	1,300.00	
1 North Dakota honorary (no dues)		
1 national honorary (no dues)		
Student loan contributions	1,861.00	
A.M.A.—Education and Research Foundation	141.00	
Received for president pins	48.80	
Received from Blue Shield for *News, Views, and Cues*	60.54	
		$5,297.67
Disbursements:		
Mrs. J. W. Jansonius, president,		
A.M.A. convention	250.00	
Chicago convention	120.00	
Mrs. R. E. Hankins, president-elect, Chicago convention	120.00	
News, Views, and Cues	122.20	
Miscellaneous fund:		
Royal Jewelers, Inc., (12 pins)	202.08	
Atlantic Playing Card and Match Co.	28.22	
Mrs. Gale Richardson (cards)	12.75	
Albert Landsberger (1962 convention)	10.00	
SAMA—Mrs. T. H. Harwood	100.00	
A.M.A-E.R.F.—Mrs. E. T. Keller	141.00	
Student loan—Mrs. Gale Richardson	1,861.00	
National treasurer	325.00	
		3,292.25
April 30, 1963, balance on hand		$2,005.42

MRS. ROGER M. BERG, Treasurer

PRESIDENT'S REPORT

It is with much pride that we of the North Dakota medical auxiliary take inventory of the legacies we have left the past year. We feel, as Abraham Lincoln once said about women, "that they did a lot of talk that got someplace." We have demonstrated this by constantly working for public awareness of our principles and projects. We chose an auxiliary theme in North Dakota, "Vision and Vigilance," in our goal toward the national theme, "Aim for Excellence in Achievement."

North Dakota has a membership of 339 members in 10 districts, which is 68 percent of our potential. We do not feel that our sparsely populated state with its great distances between "mother towns" is a barrier to purposeful and productive auxiliary work. We feel that, in many cases, our work in the small communities is felt much more deeply (collectively as the auxiliary or as the individual diplomat). Our membership drives are the time-honored personal appeal type. We feel that in a survey of why doctors' wives do not join the auxiliary we might find the key to our membership problems.

We found this year that not only had our *Bulletin* subscriptions percentage increased greatly, but the percentage of those who read it had made an enormous increase. Our subscription *Bulletin* chairman reported a 42 percent increase this year. We rate the highest in *Bulletin* subscriptions in the North Central region. Our *Bulletin* chairman constantly urges that we include the subscription rate for the *Bulletin* in our yearly dues. She has kept in very close contact with our members, working very diligently with each district. She has put so much personal appeal into it that her success has been the inevitable result of that.

North Dakota does not want to be considered a welfare state; therefore, we have demonstrated our desire to preserve our freedom by contributing through 2 mediums. First, our American Medical Association Education and Research Foundation chairman has made a tremendous drive to educate our members as to how we can buy peace of mind for our medical students. She is manning a booth at our convention to make the note paper and playing cards available. One district made a contribution of $4 per capita to the American Medical Association Education and Research Foundation. We do not have the final tally on all our contributions, but I am sure that there will be a sizable increase. Secondly, our Sophomore Student Loan Fund in its twelfth year has an approximate value of $26,446.81. We contributed $7.38 per capita to this fund in the past year. It has magic appeal to medical students because of the low interest rate. We have been asked by the dean of the University of North Dakota Medical School to extend our loan privileges to all students rather than to just sophomores. This recommendation will be voted upon at our convention.

Our community service projects have been of the factor analysis type. A group worked with the American Association of University Women on a "volunteer woman" study. It is very difficult to get this on a statistical basis, but in 1 district, it was believed that the auxiliary members (a relatively small group) gave 722 hours in community service. Fifty-two hours were given by 1 woman alone; she drove a cerebral palsied handicapped child and a woman who injured herself badly in a fall to the University of North Dakota rehabilitation center once a week. Our chairman on community service prepared a skit on follies and fads of dieting entitled, "Emilene McFadd." It was presented as a monologue. The film, "The Medicine Man," was presented to some auxiliaries. Many physical fitness programs were conducted in schools and Parent-Teacher Association meetings. The *Junior Fire Marshal* magazine carried a physical fitness program that paralleled our own program closely. Our community service chairman received 559 requests for the campaign kits to combat food fadism and false claims. She did an exemplary job in showing that calories do count.

In our complex social issue of the status of old people, we have tried to study their problems—what they fear, et cetera. Our auxiliaries take a very active part in this program. One auxiliary gave a party for the senior citizens this year, and gave it a very lively theme, "South Sea Islands." Another group provided cakes and small prizes for a bimonthly party of the senior citizens. Our WASAMA decorated vases in which they placed carnations and delivered them to bedridden patients at a memorial home. They also sent a personal note the first day of spring. Their annual project is their personal services at these homes twice a week.

Our legislation chairman has had the AMPAC approach to our legislative problems. She has studied both the issues and the individual candidate's voting record. She has issued the warning to all of us that it is evident that we will be forced to vote on the King-Anderson bill the very minute the proponents feel they have the votes to assure its passage. She urged that we have a procedure ready to activate our plans on a minute's notice. We plan to launch "Operation Hometown."

Our safety and civil defense programs have been woven into many other phases of community life. Our state-wide civil defense director presented the film, "The Eagle's Talon," and gave a very informative message on preparedness, saying that one-half of our tax dollar goes for defense. He placed emphasis on the fact that preparedness means more than just getting ready for nuclear attack. One community gave the medical self-help classes. Two hundred twenty people completed the course.

News, Views, and Cues, our official publication, reaches all of the doctors' wives in the state once a year. We feel that this contact with them makes for much better understanding of our program.

Our programs have been interesting and varied: The Veterinarian in the Community, Medicine in Saskatchewan, Economics of Medicine, Program on Banking, Ambassador's Wife, Native of Latvia, and many films.

One district sponsored the annual tea for future nurses at the state health careers rally; another gives a scholarship to a worthy member of the future nurses' club. Another group held a luncheon as a money-making project for the school for the mentally handicapped—proceeds to be used for a day camp for the handicapped; another gave Christmas baskets to 2 needy families.

Our WASAMA, with the help of a medical fraternity, compiled a questionnaire to give an insight into the type of schools to which they might transfer, the degree to which the students at the University of North Dakota are prepared in comparison to juniors from other medical schools, information on housing, and availability of jobs for wives. This information is on reserve in the University of North Dakota medical library. One of the members of this group, Mrs. George Ward, designed the national WASAMA emblem.

Mrs. Richard A. Sutter will be honored guest and speaker at our convention.

Mrs. J. W. Jansonius, President

Membership Report

Membership in the Woman's Auxiliary to the North Dakota State Medical Association this year totals 339. Of this number, 2 are national honorary members. There are 10 organized constituent auxiliaries.

The time-honored personal appeal, good programs, an honest attempt at friendliness, and searching for ways to make the individual feel wanted and useful are among the methods used to get, retain, and retrieve members. There are no members-at-large since all members have an opportunity to join and are invited to belong to their districts.

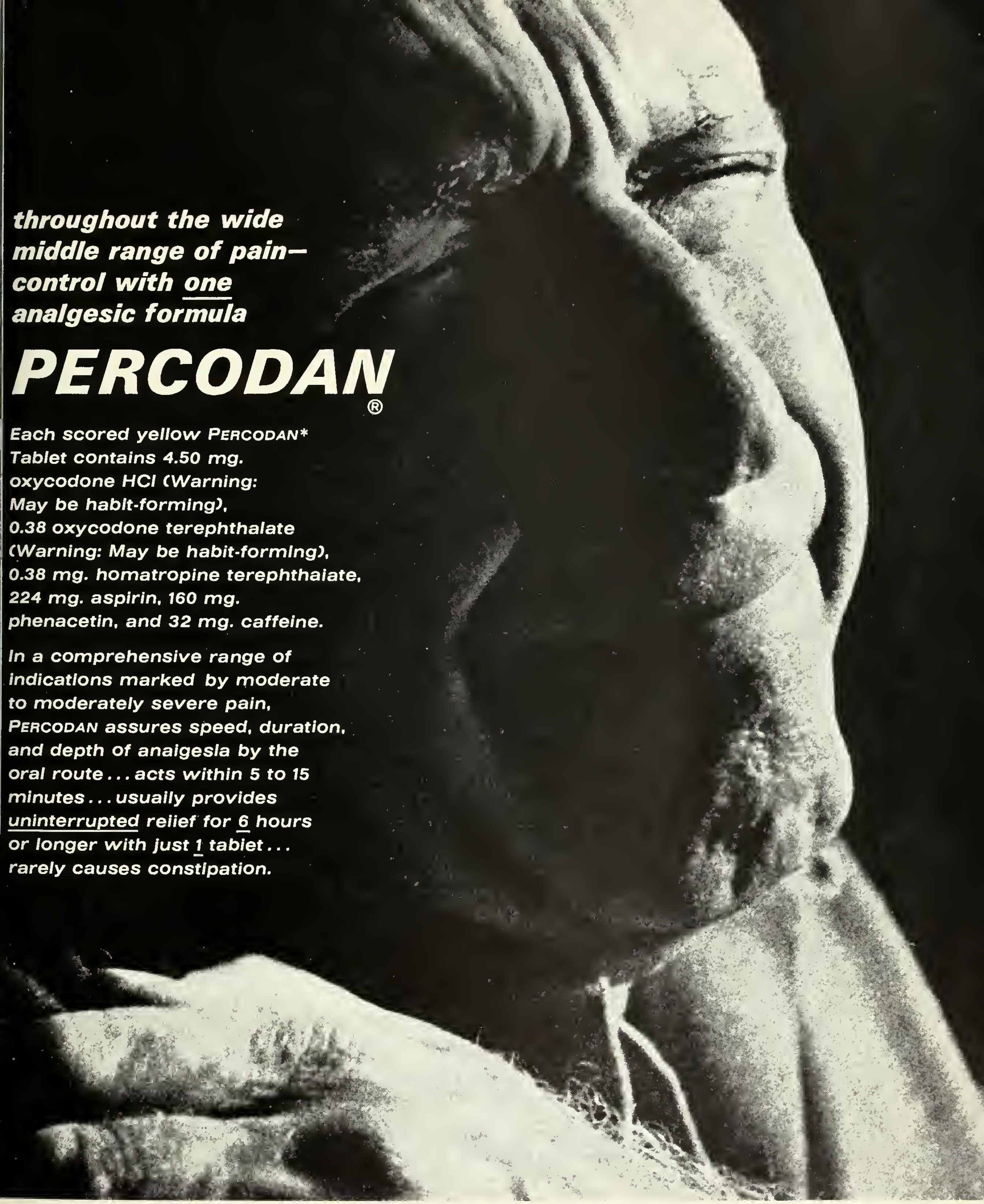
There were 19 more members in the auxiliary than there were last year.

The major problem affecting membership is one of distance. Distances are great in all of the districts—up to 80 or 100 miles from the "mother city" in some cases. It is sometimes difficult to contact and encourage these women to travel these distances. Also, many of the men are in solo or two-men practices and must take turns getting to the meetings. It often becomes impossible for the wife to get away at the same time; seldom will she travel alone.

The committee does not have any suggestions for additional help from national headquarters.

Mrs. R. E. Hankins, Chairman

(The transactions will be continued in a subsequent issue)



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Book Reviews . . .

Surgery in World War II: Thoracic Surgery

edited by COLONEL JOHN BOYD COATES, JR., *volume 1, 394 pp., ill. Office of the Surgeon General, Department of the Army, Washington, D. C., 1963. $4.25.*

This work is part of the official history of the medical department of the United States Army in World War II. It was prepared by the historical unit, U. S. Army Medical Service, and published under the direction of the surgeon general of the U. S. Army. It is the first half of the projected report on thoracic surgery in World War II.

The volume opens with an excellent Introduction (part 1), followed by Administrative Considerations (part 2), and closes with General Management of Wounds of the Chest (part 3). The second volume will deal with special types of chest injuries and their complications. Dr. Frank B. Berry is the guiding force who created this volume, and his introduction covers both history and general considerations of war wounds of the chest.

The section on history is outstanding. Dr. Berry traces the development of man's ability to wound himself in the thorax and repair the damage, from the Trojan Wars to the Korean War. It is recommended reading for all medical students and should be required for all surgical residents, probably all sociologists as well. It will be of interest to most physicians and should be reprinted in a medical publication of wide distribution.

In covering general considerations of thoracic wounds, Dr. Berry presents a practical classification of chest wounds. He then discusses the characteristics of such wounds in relation to wounding agents as influenced by size and velocity of missiles, concussion, and angle of impact. Incidence of chest wounds and case fatality rates are given for the various wars since the American Civil War. Battlefield deaths from chest wounds are discussed.

Part 2 outlines the development of a military medical organization designed to support life while evacuating soldiers with massive chest and cardiac wounds hundreds of miles to special thoracic surgical centers in the communication zone. A treatment program had to be developed that started in the battalion aid station and extended from the casualty clearing centers through either a field hospital or evacuation hospital to a chest center attached to a general hospital in the communication zone. Care had to be organized as a continuous process, each unit preparing the casualty for the next in a progressive, integrated therapeutic program.

The evolution of this magnificent organization by the cooperative effort of brilliant young civilian thoracic surgeons dedicated to the individual and working with professional military medical officers dedicated to support of the U. S. Army is a fascinating and rewarding story. It is well and frankly told by the men who were pivotal in the struggle in each theater: Drs. Lyman Brewer and Thomas Burford, in the Mediterranean; Dr. Dwight E. Harkins, in the European; and Drs. Brian B. Blades, Nolan Carter, and Michael DeBakey in the zone of interior.

These men, with the support of wise and influential surgeons drawn from positions of distinction in civilian life to serve as theater surgical consultants, such as Col. Elliot C. Cutler, M.D., in European and Col. Edward D. Churchill, M.D., in the Mediterranean, helped modify the military machine to make possible this surgical miracle. They needed more thoracic surgeons than there were, more anesthesiologists than existed, special equipment which they often borrowed from the British, and oceans of blood, airplanes, nurses, oxygen, penicillin, mobile surgical units, ancillary surgical teams working close to the battlefield, and a thousand things more. Their story of failure, frustration, and success relates how thoracic surgery, born in World War I, came to maturity in World War II.

Part 2 might be subtitled "How We Did It" and Part 3, General Management of Wounds of the Chest, appropriately describes in broad general terms "What We Did." The book is well presented by Dr. Lyman Brewer, III, and will be of interest to all surgeons dealing with chest injuries. The section on anesthesiology by Dr. Ernest A. Daud is as timely today as in World War II.

The book closes with an excellent section on rehabilitation and reconditioning of chest injuries by Drs. DeBakey, Carter, and Harkins. Again, this is the story of what we did in the war. Much here is of great value, and little has been translated into civilian practice. The book deserves wide study by thoracic surgeons and all interested in physical medicine.

N. KENNETH JENSEN, M.D.
Minneapolis

A History of Wine as Therapy

by SALVATORE P. LUCIA, *234 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $6.50.*

Here is a delightful book, beautifully introduced by Sanford Larkey, Director, William H. Welch Medical Library. The book is splendidly printed and illustrated and contains copious documentation.

Dr. Larkey calls attention to the varied talents of Dr. Lucia as a distinguished clinician, medical historian, and connoisseur of wines. He points out that Dr. Lucia is well capable of giving a definitive discussion of the medical uses of wines throughout the ages. It makes a fascinating story, and the reader will be amazed at the extent to which "the universal medicine" was skillfully used in clinical practice from the earliest times. The 14 chapters are carefully arranged, with the concluding chapter covering in detail the scientific demonstration of the physiological effects of wine. The important point to appreciate, as Dr. Lucia emphasizes, is that wine is an extremely complex substance and that its medicinal properties are by no means limited to those usually associated with alcohol.

Wines are relatively beneficial medicinal agents in a wide variety of conditions encountered in geriatric practice. In addition to fluids and alcohol, wines furnish minerals, vitamins, proteins, aldehydes, ketones, esters, organic acids, tannins, sugars, and pectins. They act as stimulants to appetite, stomachics, tonics, tranquilizers, vasodilators, astringent antiseptics, diaphoretics, and diuretics. They also serve as admirable menstrua for many

(Continued on page 14A)

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(Continued from page 12A)

drugs. While they are relatively nontoxic, care must be taken to avoid allergic reactions in some sensitive people. These are rarely seen in older persons.

An excellent feature of the volume is the careful bibliography, which is extraordinarily complete both for ancient and modern writings. Another interesting feature is the extensive chronological index to the therapeutic uses of wine. Altogether, here is a book that can be well recommended for pleasant reading, as well as for significant and verifiable information on the extensive uses to which wines may be put in clinical medical practice.

CHAUNCEY D. LEAKE
San Francisco

Fundamentals of Medical Education

by THOMAS B. TURNER, *80 pp., Charles C Thomas, Springfield, Ill., 1963. $3.75.*

This small book is a collection of 10 essays on various aspects of medical education by Dr. Thomas B. Turner, dean of the medical faculty of Johns Hopkins University. To readers who may be put off by the pedagogy suggested in Dr. Turner's title, let me hasten to point out that, although occasionally repetitions, these essays are for the most part delightfully written and timely and embody comments on some of the most pressing problems facing the medical profession today.

The first essay on medicine as a career discusses the physician as a scientist, humanist, sociologist, economist, and philosopher. The author makes a good case for the best physician having a truly renaissance mind in the twentieth century. This chapter contains an interesting comment on the physician's income. Granting the much-discussed high financial reward for practicing medicine, the author notes, "The primary concern, therefore, should be not that the doctor has a good income, but that his competence is such to justify it."

The next 4 essays are concerned primarily with modern medical education and emphasize the experimental medical education program now under way at Johns Hopkins University. The impression left is that all goes well with this new program. Dean Thomas is silent on his faculty's response to the administrative surgery which must have been necessary to reduce teaching hours in some courses and prevent duplication in others. This might well have made interesting reading, for convincing a department head to reduce course hours often requires persuasive powers of a high order.

In succeeding chapters, postgraduate and continuing education is dealt with in some detail. I found the statement, "Every physician in the future will be a specialist, the family specialist being the most numerous," somewhat emphemistic. Further, failure to include obstetrics as one of the main components of general practice seems to reflect the author's largely urban orientation to medical practice.

In common with most medical educators, Dean Turner accepts the increasing financial responsibility of the federal government for medical education with more enthusiasm than many of his practicing colleagues. Although the argument will not appeal to some, he points out " . . . that North America is the only area of the world

(Continued on page 16A)

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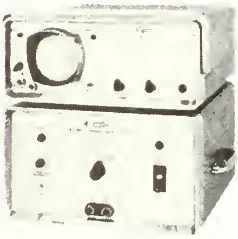

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(Continued from page 14A)

today in which the medical student is not substantially subsidized, especially to the extent of university tuition."

Reading this book is a stimulating and highly rewarding experience. This book is recommended to all persons connected, even remotely, with modern medical education and to those practicing physicians who wish to keep informed on modern trends in medical education as reported by the dean of one of the most famous medical schools in the world.

EDWIN G. OLMSTEAD, M.D.
Grand Forks

Current Diagnosis and Treatment

by HENRY BRAINERD, SHELDON MARGEN, *and* MILTON J. CHATTON, *843 pp., ill., Lange Medical Publications, Los Altos, California, 1963. $9.50.*

This book merits a wide audience among general practitioners, since the extensive needs of general practice are well covered. The information is well arranged and classified, comparatively brief, and yet thorough. If additional information is desired, a bibliography follows every chapter and most of the subtopics in each chapter. The bibliographies are comparatively brief; however, one can easily follow through for search of other material.

The book was prepared by 32 authors and their associates. Each author is well known in his own special field of interest. The volume is not intended to be a textbook, but is, rather, a reference aid for the busy practitioner. For this purpose, it is well arranged and well indexed.

A list of normal values for laboratory findings is given in the pages of the opening covers and on the inside covers in the back of the book. These are arranged alphabetically. The 28 chapters cover the whole gamut of medical practice including physical, mental, obstetrical and gynecological, psychological, endocrine, and infectious disorders, and so forth. A glossary of abbreviations is also included.

I like the arrangement and the presentation of the volume; for example, Chapter 8, "Heart and Great Vessels." The various cardiac ailments or manifestations, or both, are discussed separately. Each subdivision is stated clearly and briefly under headings such as symptoms, clinical findings, diagnostic criteria, laboratory and x-ray findings, complications, prognosis, and treatment. A brief bibliography is usually present for each subject.

This well-planned volume should be an excellent reference book on the desk or nearby shelf of the busy practicing physician.

AARON FRIEDELL, M.D.
Minneapolis

An Atlas of Congenital Heart Disease

by FRANK E. SHERMAN, *303 pp., ill., Lea & Febiger, Philadelphia, 1963. $15.*

Although an atlas, this book contains a narrative account of congenital heart defects and their hemodynamic derangements. Primarily an anatomic portrayal of a great variety of defects of the cardiovascular system, the account is based on study of 503 congenitally malformed hearts observed at the Children's Hospital, Pittsburgh, over the last twelve years.

One chapter is devoted to discussion and description of autopsy methodology. The author stresses techniques that will bring about understanding of an altered circulation and aid detection of defects. Clinical recognition of congenital cardiac conditions is of particular importance today, since surgical help is available for so many problems otherwise fatal. The pathologist, under stimulation of the clinician's newly acquired diagnostic acumen via cardiac catheterization techniques and so forth, has been making observations heretofore unknown. The pathologist would particularly benefit from this chapter.

The remaining chapters are clinically oriented. They contain discussions of the various anomalies encountered in the pathology service of a busy children's hospital. The material is classified on an anatomic basis. Anomalies of venous return occurred with expected variety. All the common entities are discussed and pictorially displayed. Anomalies of the coronary arteries, aorta, ductus arteriosus, and pulmonary arteries are discussed together. The commonly encountered patent ductus and coarctation of the aorta are presented too briefly and with scant pictorial representation. Many variations take place in manner of occurrence of these 2 entities; they occur frequently in combination with other defects and with each other. Clinical recognition of the anatomic and physiological changes brought about by the deranged anatomy are of special interest to the surgeon. This discussion is unnecessary for those who are well informed in this area but makes the book less attractive for those less versed with the varieties of occurrence of these 2 groups of defects.

Congenital alteration of the atrial septum is taken up in a chapter which considers in detail the embryology of the normal and the abnormal heart. Excellent diagrams clearly demonstrate the formation of the atrial septum, and photographs of a variety of problems encountered at surgery are included. The chapter on ventricular septal defects is similarly done. The diagrams are of particular value to the cardiac surgeon and pathologist. Little physiology is presented. In this chapter, as in the others, no attempt is made to give advice as to clinical management.

The remaining chapters are concerned with transposition of the great vessels, anomalies of the valves, and brief review of the author's experience with endocardial fibroelastosis and some metabolic diseases that cause destructive cardiac changes.

This is an excellent atlas of congenital heart disease and is of interest primarily to the pediatric cardiologist, cardiac surgeon, and pathologist. The general practitioner and the internist will find it interesting, however—the internist because some of the defects carry over to adult life and the generalist because he is usually responsible for recognition of the infant and child with possibly correctable cardiac lesion.

The extent of the problem is discussed briefly in the atlas. The overall incidence of congenital heart disease is 0.8 percent of all births. Vital statistics tell us that in 1958, for example, 4,203,812 births took place in the United States. Deaths of infants in their first year of life in 1958 totalled 113,789. About 14 percent (15,555) of these deaths were due to congenital malformations, in general, and approximately one-half of these were lesions of the circulatory system. Diagnostic centers are developing in most major cities of the country and are making quick referral and early diagnosis of congenital heart defects possible. This atlas may contribute to the recognition of defects and salvation of otherwise perfectly normal infants.

GEORGE W. LUND, M.D.
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News Briefs . . .

North Dakota

DR. JAMES R. BISHOP has established practice in Cando. He had practiced in Regina, Sask., after arriving from England in 1961.

* * *

DR. R. L. ODEGARD has moved to Minot from Hatton where he had practiced for more than three years. He is associated with the Great Plains Clinic in Minot.

* * *

DR. JON EYLANDS of Rugby has become city health officer and medical examiner for the Federal Aeronautics Administration. He succeeds Dr. Emil T. Keller in both positions. Dr. Keller has moved to Medford, Ore.

Minnesota

DR. PAO-SHIU CHEN has been appointed assistant executive officer of the St. Louis County health department. Dr. Chen was graduated from the Union Medical College in Peking, China, in 1928. He attended the School of Public Health at the University of Minnesota, receiving his master's degree in 1954. He is a member of the American Public Health Association, Kansas State Public Health Association, World Medical Association, and China Medical Association.

* * *

DR. GAYLORD W. ANDERSON, director of the School of Public Health at the University of Minnesota, has received the Sedgwick Memorial Medal for 1963, the highest award given by the American Public Health Association. He is founding director of the School of Public Health and has served as consultant to the U. S. government, the World Health Organization, and a number of foreign governments. He is former Deputy Commissioner of the Massachusetts Department of Public Health.

* * *

DR. HOWARD P. ROME, senior consultant in psychiatry at the Mayo Clinic, will succeed Dr. D. C. Campbell as president-elect of the clinic staff this year. Dr. Robert M. Salassa, consultant in medicine, succeeds Dr. Paul R. Lipscomb as staff vice-president, and Dr. Colin B. Holman has been reelected secretary.

* * *

DR. THOMAS G. PETRICK of Virginia is now director of laboratories and attending pathologist at Genesee Memorial Hospital, Batavia, N. Y. He was associate pathologist with Dr. Harold H. Joffe at the Virginia Municipal Hospital for the past three years.

* * *

DR. JAMES T. PRIESTLEY, head of a section of surgery and chairman of the board of governors of the Mayo Clinic, is the president-elect of the American College of Surgeons. He will assume office at the 1964 annual meeting. Dr. Priestley has been a member of the board of regents of the college since 1955 and a fellow of the college since 1933.

NEWS BRIEFS

DR. WILLIAM R. WATSON has announced a move from Willmar to Downey, Ill., where he will take further training in psychiatry at the Veterans Administration Hospital. He has been a staff physician at the Willmar State Hospital since 1958.

* * * *

DR. DONALD L. CARLON has become director of the department of radiology at St. Ansgar Hospital in Moorhead. Before moving to Moorhead, he was a staff member at the Rice Memorial Hospital in Willmar.

* * * *

APPLICATIONS ARE BEING ACCEPTED for the E. V. Allen Memorial Scholarship, according to Dr. Ralph E. Smith, president of the Minnesota Heart Association, which administers the scholarship fund. Predoctoral and postdoctoral students interested in three months' cardiovascular study at the Mayo Clinic, Rochester, may obtain further information from the Minnesota Heart Association, 1821 University Avenue, St. Paul. The late Dr. Allen was senior consultant in medicine at the Mayo Clinic, and the scholarship is in tribute to his concern for attracting qualified students to research in medical sciences.

* * * *

DR. ALBERT FAULCONER, JR., head of the section of anesthesiology at the Mayo Clinic, Rochester, since 1953 and professor of anesthesiology in the Mayo Foundation, University of Minnesota, has been elected president of the American Board of Anesthesiology. Dr. Faulconer has been a director of the board since 1956 and a director of the Advisory Board for Medical Specialties since 1957. He was appointed to the Mayo Clinic staff in 1947 as a consultant in anesthesiology.

* * * *

DR. DONALD C. CARTER has been appointed clinical director of the Central Minnesota Mental Health Center in St. Cloud, succeeding Dr. John P. McNamara, who has entered full-time private practice in psychiatry in St. Cloud. Dr. Carter has been associated with the center for more than a year. He is certified by the American Board of Psychiatry and Neurology and is a member of the American Psychiatric Association.

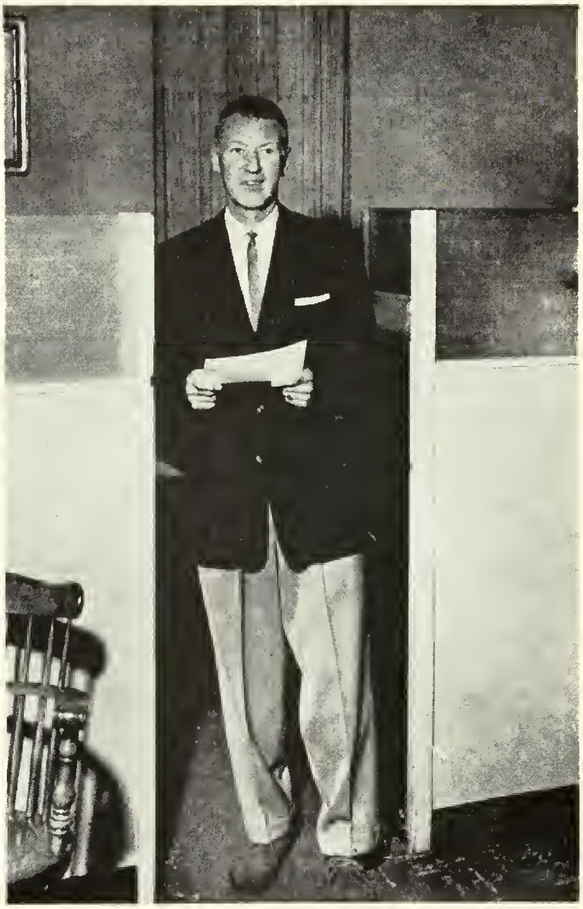
* * * *

DR. FRANCIS E. DEMARAIS, who specializes in occupational medicine, has joined the staff of the Henry Clinic in Milaca. He formerly was in the department of internal medicine at the Miners Memorial Hospital, Williamson, W. Va. Dr. DeMarais was graduated from the University of Minnesota Medical School in 1952 and served two and a half years in the U. S. Army. He has taken postgraduate training in pulmonary diseases and in psychiatry at the University of Minnesota.

* * * *

ST. JOSEPH'S HOSPITAL, St. Paul, recently observed its 110th anniversary. In commemoration of the hospital's history, a replica of the log chapel which subsequently became Minnesota's first emergency hospital in 1853 during a cholera plague was set up in the hospital lobby. It housed manuscripts, pictures, and medical and surgical instruments of historical interest to hospital employees and citizens of St. Paul.

(Continued on page 20A)



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DR. JAMES R. BISHOP has established practice in Cando. He had practiced in Regina, Sask., after arriving from England in 1961.

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DR. R. L. ODEGARD has moved to Minot from Hatton where he had practiced for more than three years. He is associated with the Great Plains Clinic in Minot.

° ° ° °

DR. JON EYLANDS of Rugby has become city health officer and medical examiner for the Federal Aeronautics Administration. He succeeds Dr. Emil T. Keller in both positions. Dr. Keller has moved to Medford, Ore.

Minnesota

DR. PAO-SHU CHEN has been appointed assistant executive officer of the St. Louis County health department. Dr. Chen was graduated from the Union Medical College in Peking, China, in 1928. He attended the School of Public Health at the University of Minnesota, receiving his master's degree in 1954. He is a member of the American Public Health Association, Kansas State Public Health Association, World Medical Association, and China Medical Association.

° ° ° °

DR. GAYLORD W. ANDERSON, director of the School of Public Health at the University of Minnesota, has received the Sedgwick Memorial Medal for 1963, the highest award given by the American Public Health Association. He is founding director of the School of Public Health and has served as consultant to the U. S. government, the World Health Organization, and a number of foreign governments. He is former Deputy Commissioner of the Massachusetts Department of Public Health.

° ° ° °

DR. HOWARD P. ROME, senior consultant in psychiatry at the Mayo Clinic, will succeed Dr. D. C. Campbell as president-elect of the clinic staff this year. Dr. Robert M. Salassa, consultant in medicine, succeeds Dr. Paul R. Lipscomb as staff vice-president, and Dr. Colin B. Holman has been reelected secretary.

° ° ° °

DR. THOMAS G. PETRICK of Virginia is now director of laboratories and attending pathologist at Genesee Memorial Hospital, Batavia, N. Y. He was associate pathologist with Dr. Harold H. Joffe at the Virginia Municipal Hospital for the past three years.

° ° ° °

DR. JAMES T. PRIESTLEY, head of a section of surgery and chairman of the board of governors of the Mayo Clinic, is the president-elect of the American College of Surgeons. He will assume office at the 1964 annual meeting. Dr. Priestley has been a member of the board of regents of the college since 1955 and a fellow of the college since 1933.

NEWS BRIEFS

DR. WILLIAM R. WATSON has announced a move from Willmar to Downey, Ill., where he will take further training in psychiatry at the Veterans Administration Hospital. He has been a staff physician at the Willmar State Hospital since 1958.

* * * *

DR. DONALD L. CARLON has become director of the department of radiology at St. Ansgar Hospital in Moorhead. Before moving to Moorhead, he was a staff member at the Rice Memorial Hospital in Willmar.

* * * *

APPLICATIONS ARE BEING ACCEPTED for the E. V. Allen Memorial Scholarship, according to Dr. Ralph E. Smith, president of the Minnesota Heart Association, which administers the scholarship fund. Predoctoral and postdoctoral students interested in three months' cardiovascular study at the Mayo Clinic, Rochester, may obtain further information from the Minnesota Heart Association, 1821 University Avenue, St. Paul. The late Dr. Allen was senior consultant in medicine at the Mayo Clinic, and the scholarship is in tribute to his concern for attracting qualified students to research in medical sciences.

* * * *

DR. ALBERT FAULCONER, JR., head of the section of anesthesiology at the Mayo Clinic, Rochester, since 1953 and professor of anesthesiology in the Mayo Foundation, University of Minnesota, has been elected president of the American Board of Anesthesiology. Dr. Faulconer has been a director of the board since 1956 and a director of the Advisory Board for Medical Specialties since 1957. He was appointed to the Mayo Clinic staff in 1947 as a consultant in anesthesiology.

* * * *

DR. DONALD C. CARTER has been appointed clinical director of the Central Minnesota Mental Health Center in St. Cloud, succeeding Dr. John P. McNamara, who has entered full-time private practice in psychiatry in St. Cloud. Dr. Carter has been associated with the center for more than a year. He is certified by the American Board of Psychiatry and Neurology and is a member of the American Psychiatric Association.

* * * *

DR. FRANCIS E. DEMARAIS, who specializes in occupational medicine, has joined the staff of the Henry Clinic in Milaca. He formerly was in the department of internal medicine at the Miners Memorial Hospital, Williamson, W. Va. Dr. DeMarais was graduated from the University of Minnesota Medical School in 1952 and served two and a half years in the U. S. Army. He has taken postgraduate training in pulmonary diseases and in psychiatry at the University of Minnesota.

* * * *

ST. JOSEPH'S HOSPITAL, St. Paul, recently observed its 110th anniversary. In commemoration of the hospital's history, a replica of the log chapel which subsequently became Minnesota's first emergency hospital in 1853 during a cholera plague was set up in the hospital lobby. It housed manuscripts, pictures, and medical and surgical instruments of historical interest to hospital employees and citizens of St. Paul.

(Continued on page 20A)

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(Continued from page 19A)

South Dakota

DR. STERLING BERG, associated with Dr. R. J. Foley in Tyndall for the past eight years, has entered partnership with Dr. Glenn Kleinsasser in Scotland.

* * * *

DR. BEDRETTIN GUNC of Selby has established a practice in Herreid. Dr. Gunc is a native of Turkey and received his medical education at the Medical School of Istanbul in 1948. After internship and residency in Turkey, Dr. Gunc held positions in several American hospitals, most recently as a staff physician at Battey State Hospital, Rome, Ga.

Deaths . . .

DR. ANDREW CHRISTIANSEN, 77, St. Paul, died Nov. 3 at Bethesda Hospital in St. Paul after a two-month illness. He was chief of staff at Bethesda Hospital in 1946. Dr. Christiansen was graduated from the University of Minnesota in 1910 and interned at Ancker Hospital in St. Paul. He practiced in St. Paul for fifty years.

* * * *

DR. EVERETT E. GREENE, 73, general practitioner in Westhope, N. D., since 1916, died at his home Nov. 10. A member of the American Academy of General Practice, he was graduated from the University of Minnesota Medical School and interned at St. Paul, Minn.

* * * *

DR. PHILIP E. STANGL, 77, attending pathologist at the Veterans Administration Hospital in St. Cloud, Minn., died Nov. 14. He had been in semiretirement for a number of years. Dr. Stangl was graduated in 1911 from Rush Medical College, Chicago. He was a fellow of the American College of Surgeons and member of the American Society of Clinical Pathologists.

* * * *

DR. GUY E. VAN DEMARK, 84, instrumental in the establishment of the Crippled Children's Hospital and School in Sioux Falls, died in Sioux Falls Nov. 9. Dr. Van Demark was one of the founders of the Sioux Falls Clinic and was the first surgeon in the state to pass examinations for certification by the American Board of Orthopaedic Surgery. He was in active practice in Sioux Falls from 1910 until 1961, when he began to turn over his practice to Dr. Robert E. Van Demark, his nephew. He introduced many surgical operations in the Sioux Falls area, including pinning for hip fractures. The awards he received for his work included the Distinguished Service Award of the South Dakota Medical Association, Citation for Outstanding Service from the President's Committee for the Employment of the Physically Handicapped, Sioux Falls Cosmopolitan Club Distinguished Service Medal, and certificate of merit from the South Dakota Aid to the Physically Handicapped Committee. Dr. Van Demark was graduated from Northwestern University Medical School in Chicago in 1906. He was a member of the Clinical Orthopaedic Society, American Academy of Orthopaedic Surgeons, and American College of Surgeons.

COMING *in* *March*

Articles and features to be found in the next issue of THE JOURNAL-LANCET

Half the deaths in the United States each year are due to cardiovascular disease, and 20% of these result from coronary heart disease, the commonest single cause, according to John H. Kennedy, M.D., Cleveland, Ohio.

A member of the department of surgery, Western Reserve University, Dr. Kennedy, in a paper entitled "Experimental Background for the Surgical Treatment of Coronary Heart Disease," writes that some 800,000 persons suffer a heart attack each year, and approximately 25% die in their first attack. He stresses that a second, but equally significant, consideration is the morbidity of the more or less distressing symptoms of the surviving 75%, one-third of whom never return to gainful employment.

Dr. Kennedy states that this latter group lives an average of ten years after onset of angina pectoris, with the statistical anticipation of dying of coronary heart disease or its complications.

"Since the best medical therapy does not alter the course of the atherosclerotic process," he writes, "it is natural that an attempt at surgical relief is sought eagerly by physician, patient, and surgeon."

In the opinion of the author, it is disappointing that in more than 80% of patients the distribution of the occlusive process makes them unsuitable for a direct surgical approach.

Dr. Kennedy's article presents a review of the investigational efforts and clinical trials of surgical therapy in coronary heart disease and covers the laboratory observations conducted by the author.

Among other articles to appear in the March issue are:

- **Pathogenicity of Attenuated and Avirulent Tubercle Bacilli,** by William Steenken, Jr., D.Sc., James W. Raleigh, M.D., and Marjorie M. Smith, Saranac Lake, New York, and New York City.
- **Esophageal Atresia and Gasless Abdomen,** by Eugene J. Linberg, M.D., and Bahram Erfan, M.D., Baltimore.
- **Internal Iliac Artery Ligation,** by R. Clay Burchell, M.D., Chicago.
- **The Application of Recent Advances in Methodology to Cardiovascular Diagnosis,** by John Ross, Jr., M.D., Bethesda.

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*Donnelly, J.: A.M.A. Arch. Environmental Health 6:697, June, 1963

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The Journal-Lancet

SERVING THE MEDICAL PROFESSION OF MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA, AND MONTANA

Special Diagnostic Techniques in Lesions of the Renal Parenchyma

MORDECAI HALPERN, M.D.
New York City

SPECIALIZED diagnostic radiological techniques developed as a result of the need for more precise anatomic information than could be supplied by conventional routine radiological studies.

Roentgenologically, the kidney is definable through excretory urography and retrograde pyelography (with opaque contrast or gas). More recently, the isotope renogram and renoscan have been used in an attempt to convert physiological data into anatomic-pathological diagnosis. Simple renal tomography and perirenal air insufflation have been utilized in an indirect manner: primarily for definition of extrarenal lesions. The advent of simple but refined arteriographic methods has greatly curtailed the use of such techniques and, in part, has almost completely supplanted them in the study of extrarenal lesions.

Renal arteriography is now an important diagnostic method for study of the renal parenchyma. As is true in selective studies of all types, one must carefully define the problem and design an approach that serves the best interests of the patient.

Renal arteriography permits a remarkably high degree of accuracy in the differential diagnosis of renal mass lesions. Certain postulates first must be established: (1) surgical intervention most often is not required for diagnosis of renal tumefaction; (2) arteriography enables accurate diagnosis of true lesions and differentiation from conditions such as unusual fetal lobulation, fibrolipomatosis, localized renal atrophy, and spurious mass lesion secondary to rotation of the kidney. Since we can obtain detailed information about the specific characteristics and extent of a given lesion, gross diagnosis is no longer acceptable. Disease conditions such as pyelonephritis can be studied in vivo from the point of view of their arteriographic morphology.

METHODS

Two methods of renal arteriography require only passing comment: (1) intravenous abdominal aortography is not considered to be a specialized technique for the diagnosis of renal parenchymal lesions or renovascular lesions; and (2) similarly, translumbar aortography is considered to be an outmoded technique. Our attention is therefore directed toward two methods of study, both of which are excellent and have proved their worth over a long period of time: nephrotomography[1-3] and renal aortography and selective renal arteriography.[4-6]

MORDECAI HALPERN *is with The New York Hospital–Cornell Medical Center, New York City.*

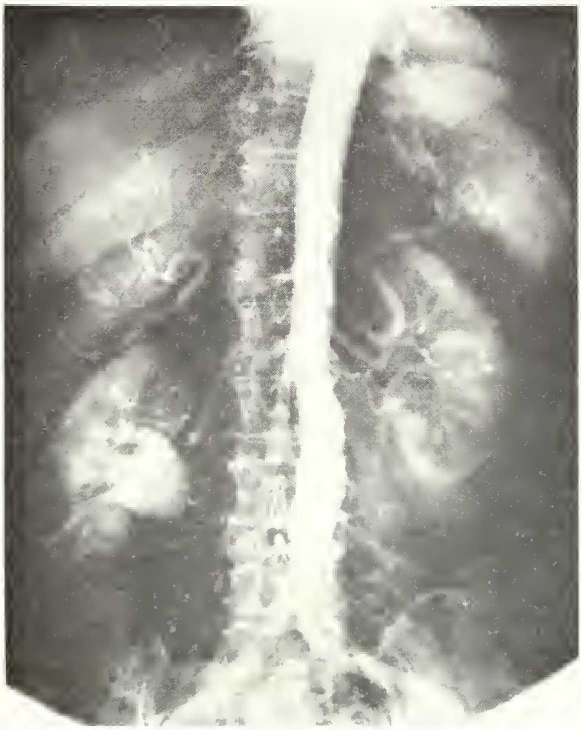


Fig. 1. Normal renal aortogram. Arterial phase of nephrotomogram

Nephrotomography employs intravenous aortography to demonstrate the renal arterial blood flow (figure 1); it employs renal tomography during the nephrogram phase to define the renal parenchyma. Such simplicity permits its performance in most radiological installations. Catheter-replacement renal arteriography (figure 2) is far more restrictive in that it requires rapid serial filming devices and image amplification units for proper and complete performance. The radiological literature is replete with reports detailing these techniques, but more widespread dissemination to the fields of urology and general practice is needed. Our purpose is to establish the value of selective arteriography by demonstrating the important diagnostic problems and lesions of the upper urinary tract. Familiarity and experience with the techniques of renal arteriography dictate their application to a given situation.

MATERIALS

The files of the department of radiology of The New York Hospital–Cornell Medical Center offer 1,000 nephrotomograms for analysis. Among more than 1,000 percutaneous transfemoral arteriograms performed by the department, 600 renal aortograms and 300 selective renal arteriograms provided the material for this study.

Lobulation of the kidney or apparent deformities of renal mass or contour due to rotation at times become a problem incidental to pyelography. A pressing situation results in the patient with microscopic hematuria or polycythemia. Resolution frequently is attempted by surgical exploration of the kidney, a situation generally forced by the unavailability of further adequate diagnostic studies. Nephrotomography (figure

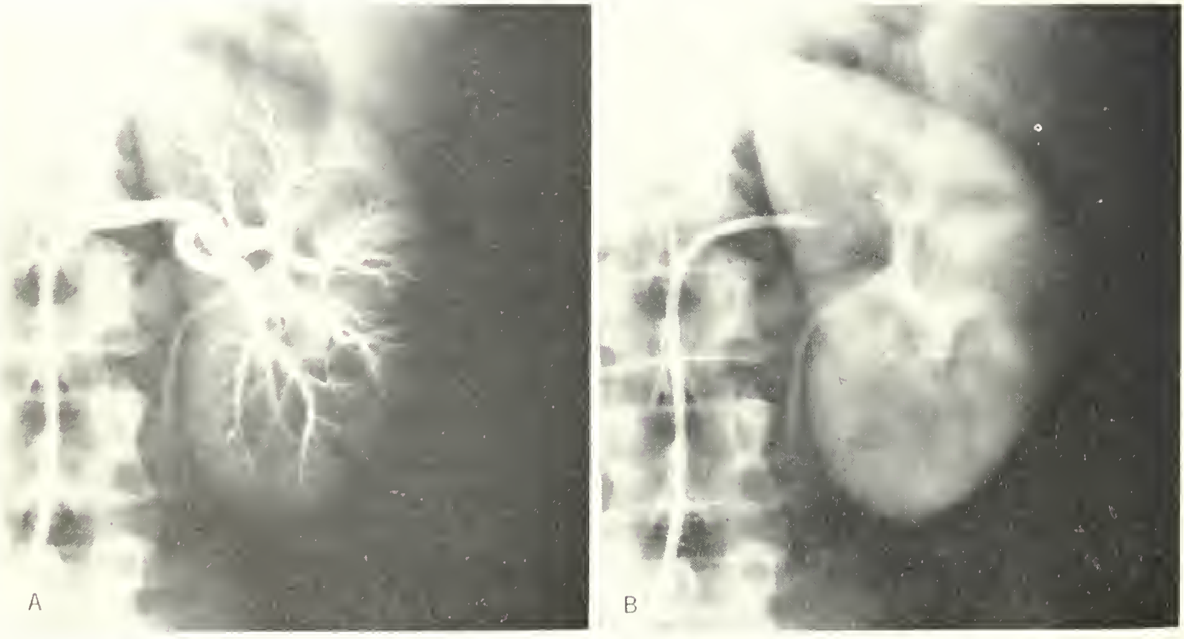
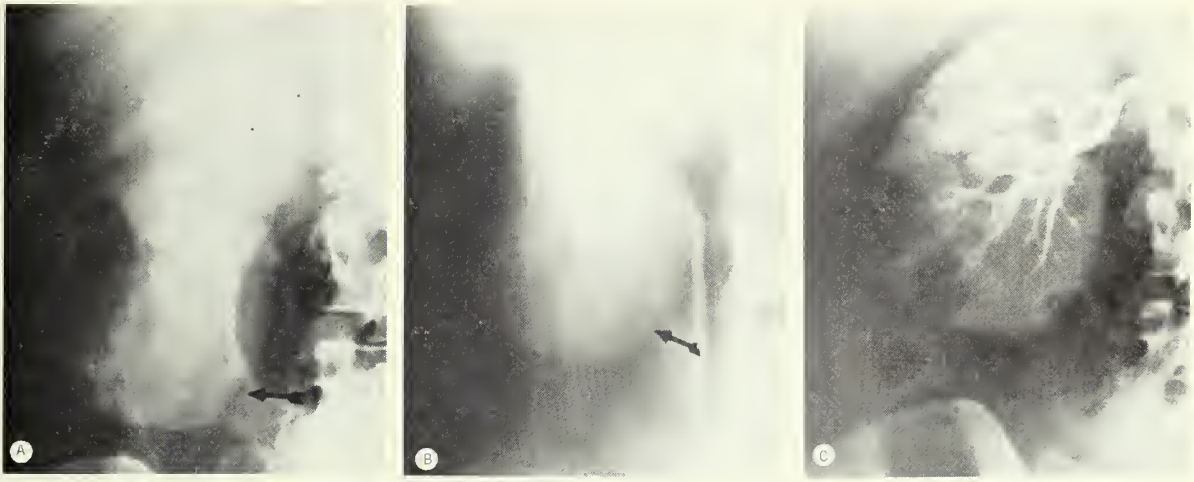


Fig. 2. Normal renal arteriogram. Left selective renal arteriogram: A. Arterial phase. B. Nephrogram phase



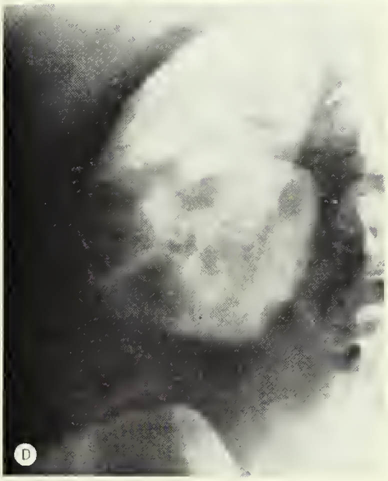


Fig. 3. Renal deformity due to rotation. Nephrotomogram: A. Arterial phase. B. Tomogram. Selective arteriogram: C. Arterial phase. D. Nephrogram. Normal intrarenal vasculature and homogenous renal parenchyma is demonstrated.

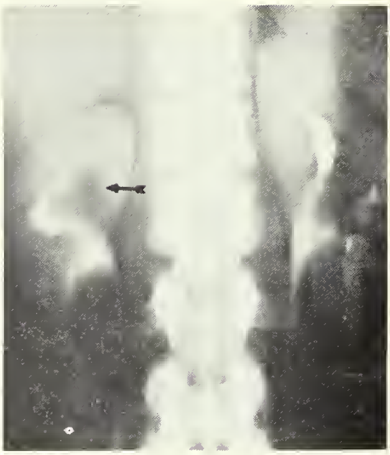


Fig. 4. Nephrotomogram showing localized deposition of fat tissue

3A and B) demonstrates normal, homogenous renal parenchyma, while selective renal arteriography (figure 3C and D) clearly visualizes the details of the intralobular and intralobular arterial branches with a normal capillary nephrogram to establish the diagnosis and obviate unnecessary surgery.

RENAL FAT DEPOSITION

The deposition of fatty tissue adjacent to portions of the upper renal collecting system frequently creates a pyelographic picture mimicking a space-occupying lesion. Calyceal compression and distortion and elongation and attenuation of the major calyces are most common.

Three diagnostic possibilities should be discussed. The first of these is the simple localized deposition of fat adjacent to a calyx, producing varying degrees of displacement. No underlying disease exists; this is merely a variation from normal and a problem only in its exaggerated form (figure 4). Most commonly, it appears in the medial aspect of the upper pole. The second condition is associated with some degree of chronic pyelonephritis or interstitial nephritis. Some degree of atrophy of the renal parenchyma is usually present. Here again, localized deposit of fatty tissue occurs in the pericalyceal region, resulting in a form of calyceal distortion which resembles that caused by renal tumors.

Fibrolipomatosis is the last of the group to be discussed. For several years, it has been referred to simply as the excessive deposition of fat in the peripelvic region. Though of unknown etiology, the process is felt by some to be the result of some inflammatory process in or about the kidney. Its increased occurrence in the later decades of life suggests that it may merely represent a senescent change. Characteristic attenuation of the infundibula exists in association with somewhat poor definition of many minor calyces on the excretory urogram.

Fibrolipomatosis most commonly is seen as a bilateral condition, but the degree of involvement of the kidneys varies considerably from side to side. When unilateral, the radiographic appearance is strongly suggestive of a space-occupying lesion or diffuse infiltrating process involving the kidney. Nephrotomography clearly shows the peripelvic location of excess fat deposition (figure 5). This is also represented by decreased density during the nephrographic phase of selective renal arteriography, which also reveals the subtle deviations of intrarenal vessels (figure 6). The association of this condition with scarring of the renal parenchyma and irregularity of vessel course and contour, representing changes secondary to pyelonephritis, furthers the theory of an interrelationship between the two conditions.

MASS LESIONS

The diagnostic problem presented by space-occupying masses of the kidney is determination of their benignancy or malignancy. The distinctive radiographic appearance of each of these masses during arteriography enables a degree of accurate differential diagnosis in the order of 98 percent. It is a misconception to believe that more than 50 percent accuracy is possible utilizing the criteria applicable to routine pyelographic techniques.

The benign renal cyst is an avascular tumefaction which stretches and displaces the vascular structures and distorts the parenchyma. Therefore, the nephrogram phase of renal arteriography and nephrotomography demonstrates its sharp demarcation from the adjacent renal parenchyma along with an even, thin, capsulelike border (figure 7A). Small cysts, 1 to 2 cm. in size, are readily definable on tomograms but may escape detection during selective arteriography unless one is extremely well conversant with the subtle deviations of intralobular vessels and their significance. Oblique views or tomograms, or both, may be required during the capillary phase. Peripelvic cysts are characterized by their location and effect on the pelviocalyceal system. Hemorrhagic and infected cysts do not have specific appearances which differ from those of the simple cysts.

While carcinoma is occasionally present in

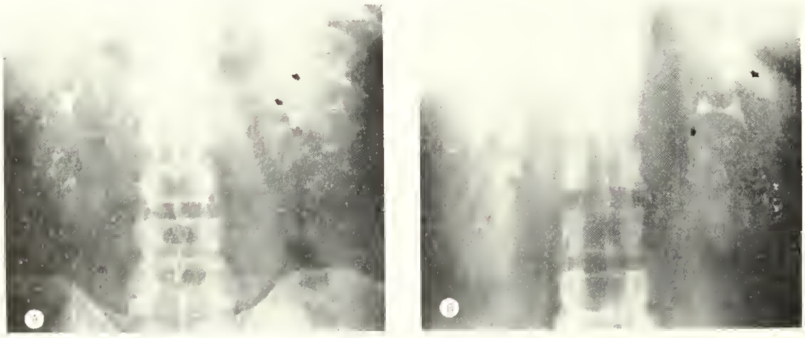
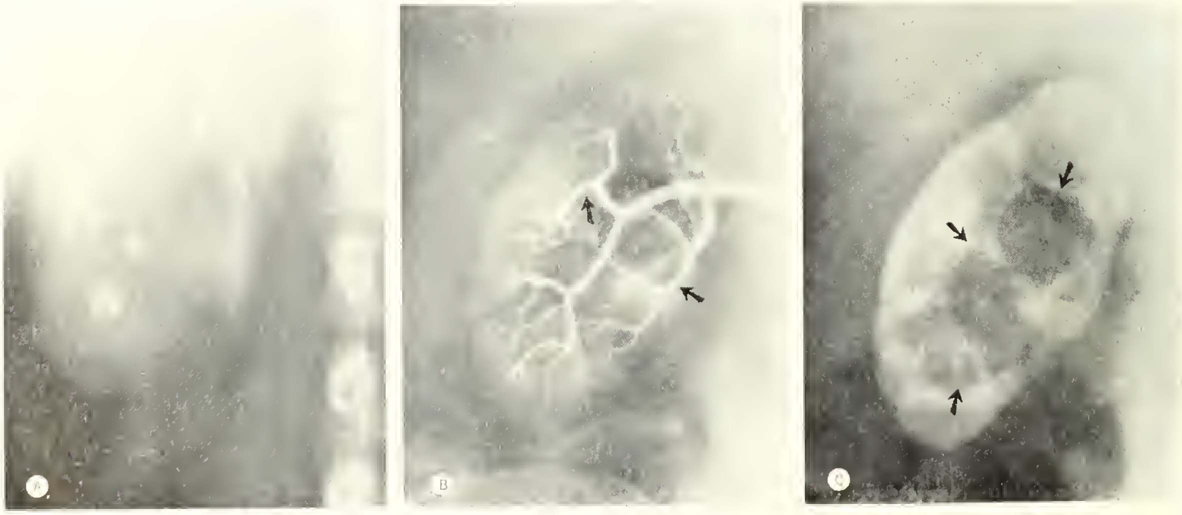


Fig. 5. Fibrolipomatosis. A. Intravenous pyelogram shows slight attenuation and distortion of lower pole infundibulum on right (clear arrow): there are marked changes and calyceal displacement on the left. B. Nephrotomogram shows fat deposits in the pericalyceal regions as the cause of the calyceal changes.

Fig. 6. Fibrolipomatosis. A. Tomographic cut from nephrotomogram. Excessive pericalyceal fat tissue well shown. B. and C. Right selective renal arteriogram—arrows show subtle deviations of vessels and peripelvic lucencies during nephrogram phase. Needle biopsy ruled out presence of a small peripelvic cyst.



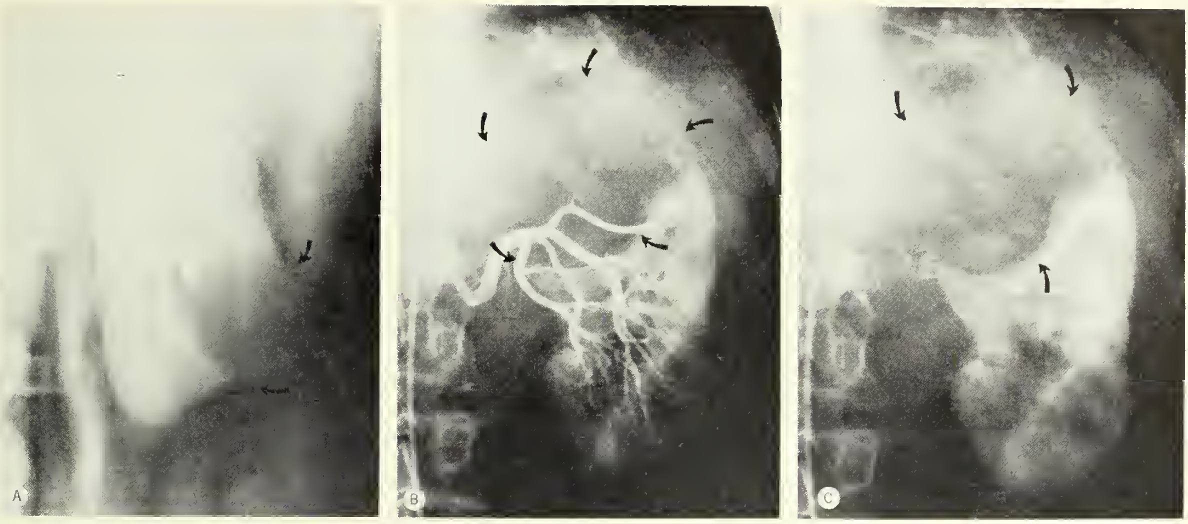


Fig. 7. Benign renal cyst. A. Nephrotomogram shows sharply demarcated area of radiolucency. B. and C. Arterial and nephrogram phases of a left selective renal arteriogram reveal displacement of vessels and demarcation from normal parenchyma by a large upper pole cyst (outlined by arrows).

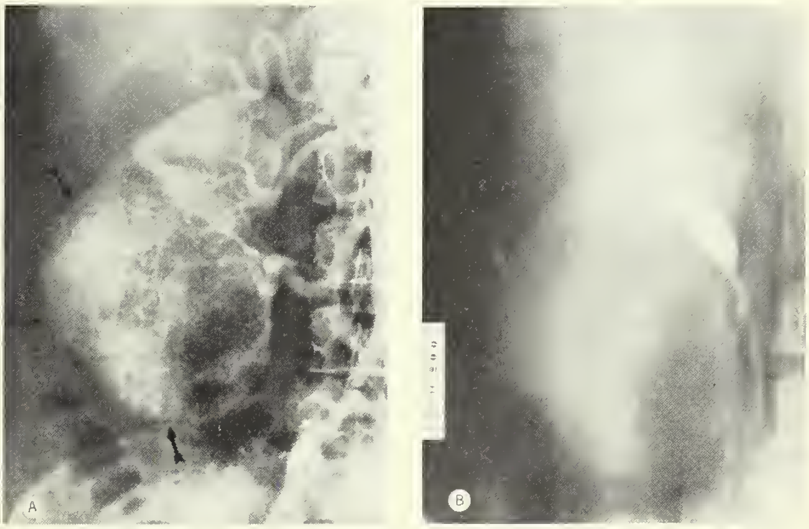


Fig. 8. Renal carcinoma. Nephrotomogram. A. Arterial phase demonstrates meshwork of pathological vessels. B. Tomogram phase demonstrates some areas of radiolucency within tumor, indicating sites of necrosis or hemorrhage.

conjunction with a cyst, malignant degeneration of the latter has not been proved. The most difficult problem concerns the almost complete degeneration of a renal carcinoma so that cystic necrosis or a well-defined hemorrhagic cyst is the major form of presentation. Arteriography will define some pathological vasculature in the actively growing portion of the tumor and usually displays variation, somewhat different from the benign cyst, in the character of the wall of the cystic mass. This is usually an uneven thickness of the wall or lack of precise separation of the mass from the normal parenchyma. All of the roentgenographic criteria of a renal cyst must be fulfilled before such diagnosis is made.

In about 6 percent of nephrotomograms, a precise diagnosis as to the nature of the mass cannot be made. Selective catheter arteriography is then used (figure 7B and C). While a small percentage of renal carcinomas are sparsely vascular or avascular, the majority of tumors are characteristically highly vascular, hemorrhagic, necrotic, and show evidence of arteriovenous shunting (figures 8 and 9). Hence, the arteriographic appearance is that of an ill-defined area containing pathological vessels; pooling of contrast medium is seen; the separation from normal tissue is not sharp; the mass is sometimes less dense than the normal portions of the kidney due to a degree of avascularity or necrosis, or both, but the tumor is most often of equal or greater density than the normal parenchymal tissue. These lesions never meet all the criteria of a benign cyst.

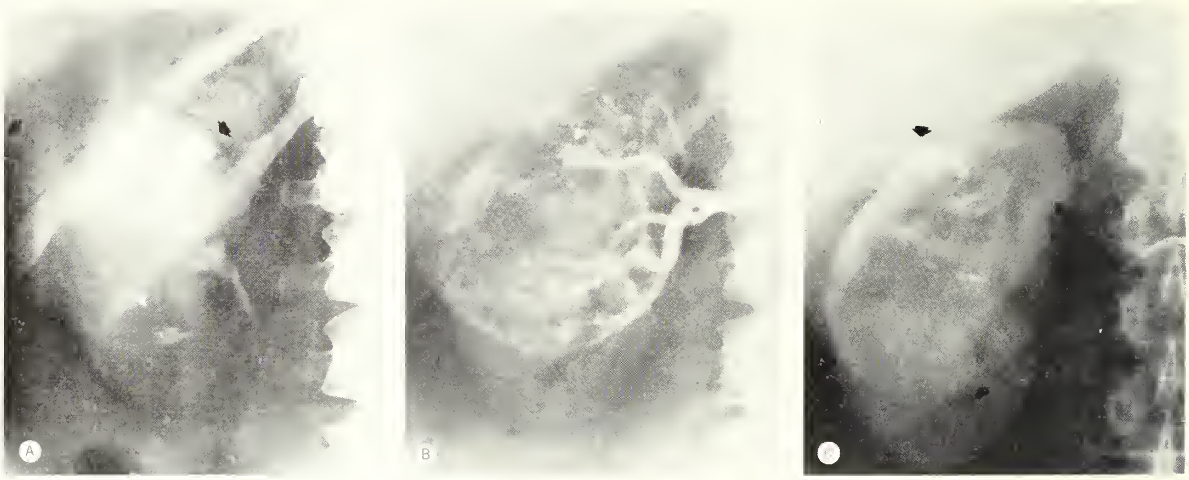


Fig. 9. Renal carcinoma. A. Intravenous pyelogram shows rounded mass superimposed on the kidney. B. and C. Right selective renal arteriogram shows displacement of intrarenal vessels, pathological vessels, and arteriovenous shunting within the cystic tumor.

In rare instances, an unequivocal differential diagnosis will not be possible; this is the only occasion when exploration is required for diagnosis. In general, proper film sequencing permits diagnostic visualization of the renal vein. Hence, evaluation of the presence of tumor extrusion into the renal vein is possible. In conjunction with details of the main tumor mass, this information permits complete analysis of the true operability and prognosis of the lesion.

Renal neoplasms other than hypernephroma are so rare that separate discussion is not required. The capsular fibroma, hilar lipomas, and the like have no known distinctive vascular pattern. Nephrotomography or selective arteriography with capillary tomography (that is, tomography performed during the capillary phase of selective arteriography) will reveal features not completely characteristic of a renal cyst. Diagnosis must be indecisive, since a diagnosis of malignancy is also impossible. Differentiation between a benign adenoma and hypernephroma is not possible arteriographically. The arbitrary pathological differentiation based on the size of the lesion must remain with the pathologist.

NONFUNCTIONING KIDNEY, RENAL ATROPHY, RENAL AGENESIS

The application of renal arteriography in patients demonstrating nonvisualization of a kidney or routine pyelography is extremely rewarding. Renal agenesis is best proved by properly performed renal aortography. An increasing number of cases of agenesis occur in association with partial visualization of hypoplastic ureters or atretic ureters defined by retrograde pyelogra-

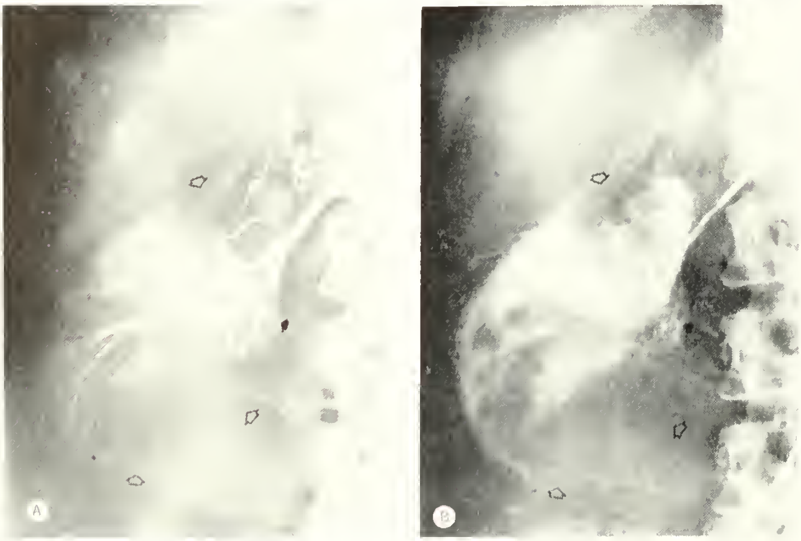


Fig. 10. Carcinoma of renal pelvis (nonfunctioning kidney). Selective right renal arteriogram. A. Pathological vessels (black arrow) and areas of invasion of the kidney (clear arrows) are well seen. B. Nephrogram shows status of renal parenchyma.

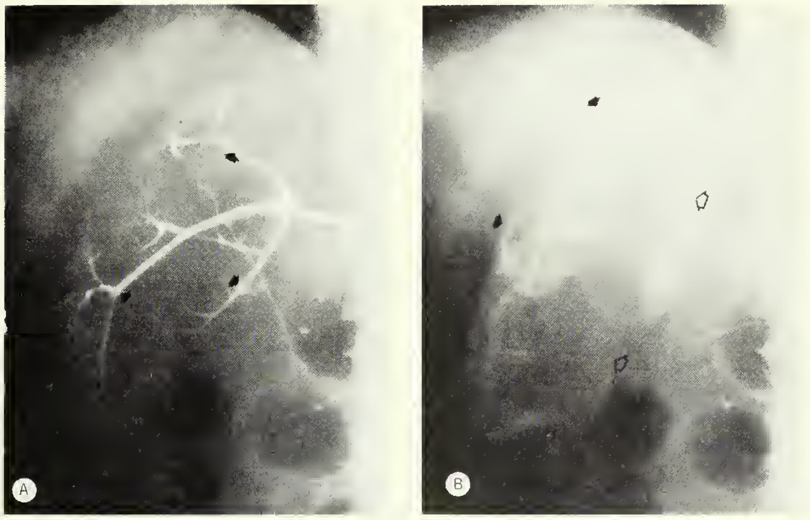


Fig. 11. Hydronephrosis (nonfunctioning kidney). Selective right renal arteriogram. A. Characteristic atrophy and displacement of intrarenal vessels are seen. B. Nephrogram shows markedly thinned renal cortex. Radiolucent areas represent the hydronephrotic collecting system. Diagnosis: carcinoma of the distal ureter

phy. When some manner of renal tissue does exist, its value to the individual is assessed from the appearance of its vascular supply. Similarly, the functional status of atrophic kidneys is determined by this method, which is used, of course, in conjunction with the analysis of renal morphology as viewed on retrograde study.

Numerous instances occur wherein the exact etiology of renal nonfunction cannot be determined and where retrograde pyelography is not possible. On one hand, the diagnosis of carcinoma of the renal pelvis with obstruction and secondary nonfunction can be made arteriographically (figure 10). On the other hand, a distal ureteric lesion, either inflammatory or neoplastic, will not necessarily be defined, but arteriography will evaluate the status of the renal parenchyma. This provides the surgeon with invaluable preoperative information (figure 11). In varying degrees of hydronephrosis, the amount of remaining renal cortex will be visualized. The degree of atrophy of the main renal artery and the attenuation, displacement, and sparsity of the intrarenal vessels provide a characteristic vascular pattern. Insufficient use of this method has been made in patients with renal trauma. Vascular destruction, hematoma, and renal lacerations are all definable arteriographically.

Renal artery embolism and thrombosis with concomitant renal parenchyma changes require little additional discussion. Figure 12 represents one example of renal vascular calcification in association with an atherosclerotic aneurysm, thrombosis, and infarct of the lower pole of the kidney. This patient had a history of colic and fever. These symptoms showed recrudescence following removal of a ureteral calculus. Pyelography certainly did not provide the urologist with a complete analysis of the underlying situation.

RENAL PARENCHYMAL INFECTIONS

Insufficient application of arteriography to the problem of renal tuberculosis has been made.

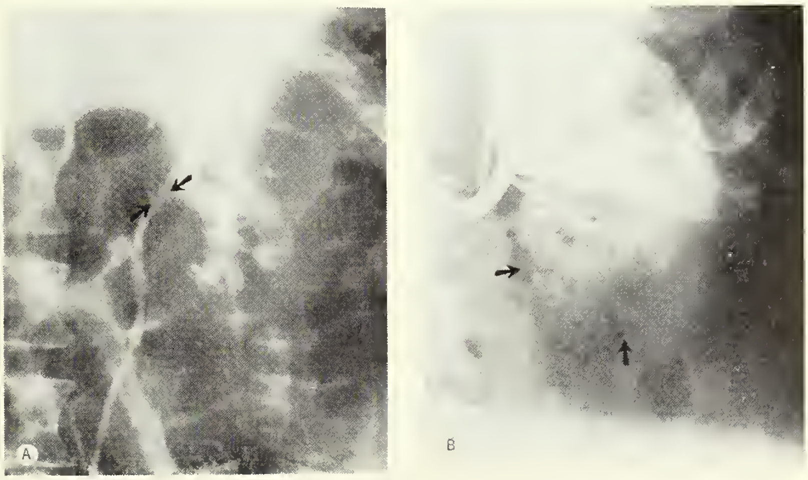
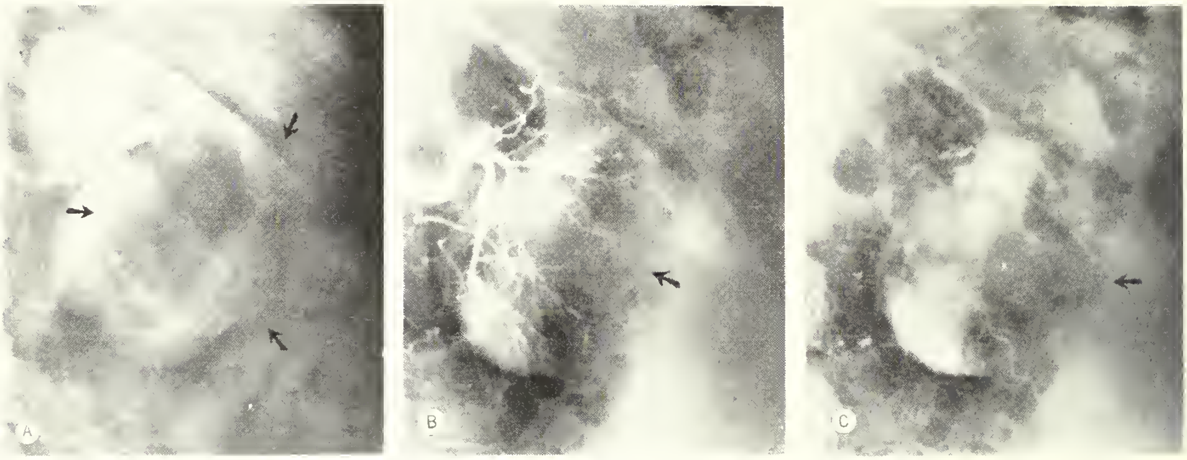


Fig. 12. Renal infarct. A. Pyelogram—arrows point to parallel calcifications related to renal hilum. B. Selective left renal arteriogram—dorsal renal artery is not visualized. Arrows outline infarcted lower pole.



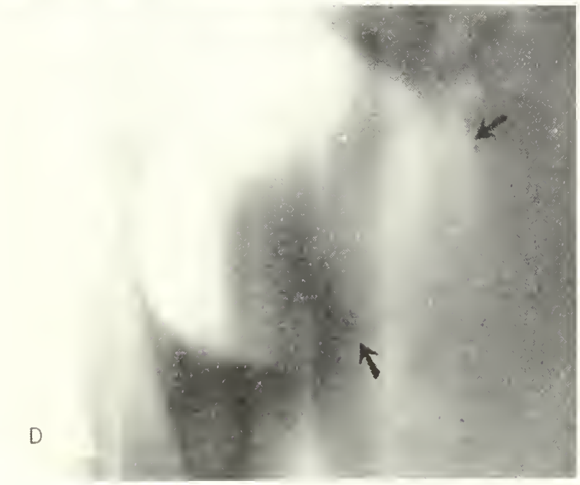


Fig. 13. Renal tuberculosis. A. Nephrotomogram (1960)—arterial phase shows large area of radiolucency. Note normal-appearing upper pole. B. Selective left renal arteriogram (1962). Intrarenal vessels are distorted and displaced. Upper pole is avascular. C. Nephrogram shows little residual renal parenchyma. D. Capillary tomogram aids in defining large abscess.

Statistical studies of the incidence of genitourinary tuberculosis reveal the expected decrease in the incidence of renal tuberculosis since the advent of antibiotic therapy, but the studies continue to show a low rate of diagnosis of this condition ante mortem.[7] Excellent work on selective angiography in renal tuberculosis[8,9] has proved that the full extent of the parenchymal involvement by tuberculosis can only be determined by selective renal arteriography (figure 13). Inflammatory vascular thromboses, parenchymal destruction, and cortical abscess formation can be extensive, though only minimal morphological changes are present on the pyelographic study. Definition of the vascular anatomy of the kidney is required prior to the definitive surgical or medical approach to this disease. An established policy of performing selective renal arteriography prior to the institution of either medical or surgical therapy, or both, is highly commendable. The ability to perform a considerable number of segmental resections, thus conserving renal parenchyma as a result of arteriographic knowledge, should result in the more widespread adoption of these principles of study and treatment.

By themselves, specific or nonspecific abscesses of the kidney reveal a varying degree of irregularity of the interlobular arteries, with displacement of these vessels in relation to an avascular, hence radiolucent, area in the renal parenchyma. The margination of these lesions is less well demarcated from the normal parenchymal tissue than noted in the renal cysts. While irregular and disturbed in their course, the vessels do not show pathological branchings, and tumor staining and abnormal arteriovenous shunting is not present. A renal carbuncle naturally appears as a multilocular deformity in the kidney with similar vascular changes. One must often resort to the more precise technique of selective arteriography in association with capillary tomography rather than relying on nephrotomography for a high degree of diagnostic differentiation from necrotic renal carcinoma.

MISCELLANEOUS

That distinctive vascular changes take place in pyelonephritis was mentioned earlier. Calyceal deformity, fat deposition, renal atrophy (either localized or general), and thinning of the renal cortex and cortical scarring enable diagnosis of this condition by either of the arteriographic techniques. With nephrotomography, the diagnosis results from studies performed for suspicion of mass lesions. Selective arteriography is being deliberately employed for detailed study

Fig. 14. Surgical defect postnephrolithotomy. Selective left renal arteriogram. Arrows show vascular and parenchymal changes resulting from surgery.

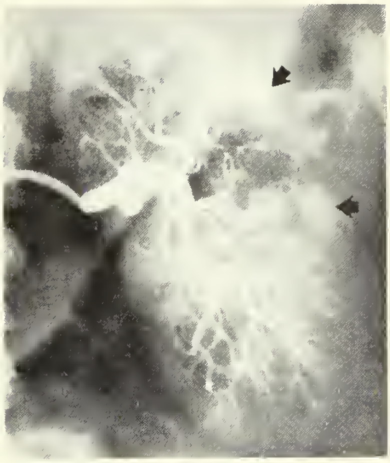
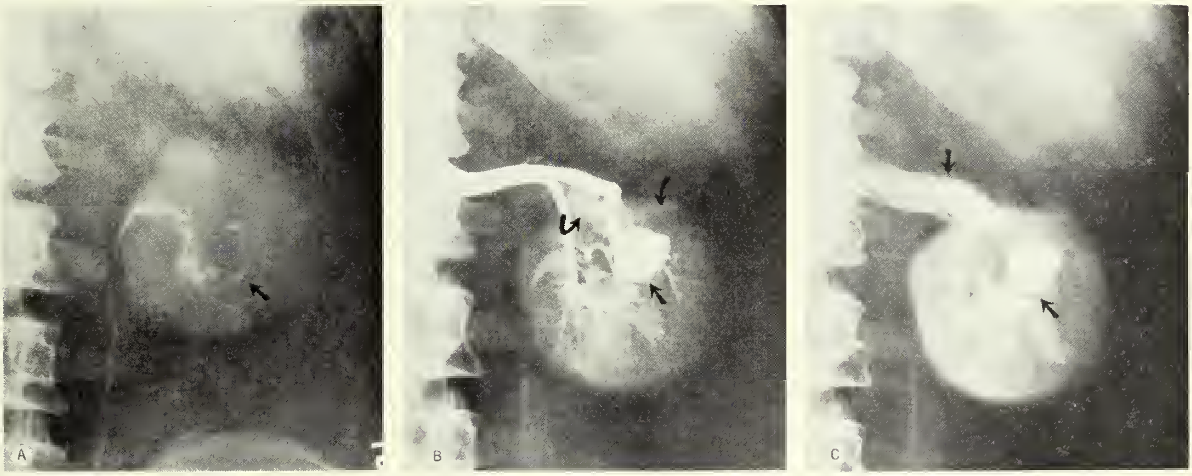


Fig. 15. Arteriovenous fistula—postsurgical. A. Intravenous pyelogram. Abnormal shape of the kidney due to previous segmental resection. Arrow points to renal calculi. Selective left renal arteriogram B. and C. B. Arterial phase—straight arrow points to large arteriovenous fistula; U-shaped arrow shows immediate filling of the renal vein; curved arrow points to cortical abscess. C. Nephrogram and venous phase



of this condition itself. In conjunction with these investigations, the collagen diseases, nephrosclerosis, and similar conditions may prove themselves definable by arteriography, thus indirectly explaining parenchymal changes that are nonspecific by other radiographic studies.

Surgical parenchymal defects have been demonstrated. The simple scarred deformity secondary to nephrolithotomy (figure 14) should be compared with the unusual appearance of the kidney shown in figure 15. This latter patient first underwent pyelolithotomy for renal calculi and subsequent lithotomy and segmental renal resection for recurrence of infection and calculi. The persistence of resistant infection prompted the arteriographic examination with demonstration of the unusual complication of surgery, namely, an arteriovenous fistula. A cortical abscess is readily seen, along with an unusual rim of tissue bordering the renal outline and representing evidence of chronic inflammation of the perirenal tissues. Within the kidney, a dramatic complex arteriovenous fistula is seen. This is presumed to be a result of prior surgery in conjunction with recurrent renal infection.

CONCLUSION

Two complementary radiological techniques which permit an extremely high degree of diagnostic accuracy in the analysis of renal parenchymal lesions have been discussed. Without question, we should diagnose all renal parenchymal lesions for the purposes of both obviating unnecessary renal exploratory surgery and providing our surgical confreres with accurate anatomic and pathological information prior to surgery. The simplicity and tremendous importance of these conclusions can be appreciated only when the physician becomes acquainted with the radiological diagnostic technique of renal arteriography.

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GASTRIC FREEZING causes various structural changes which may be observed in the canine stomach. Freezing of the intact canine stomach and of isolated gastric pouches brings about metaplasia of the mucosa with changes in the mucous lining cells, the chief cells, and the parietal cells. Fibrosis occurs in the lamina propria and is especially obvious after repeated freezing. Structural changes also may be observed in Auerbach's ganglion cells and in the muscle and serous coats of the gastric wall. Fairly complete regeneration, especially of the mucosa, is usual after some weeks to a few months following a single freeze. Recovery is usual but not invariable, depending in large part upon the number and severity of freezing episodes. After multiple freezes of intact stomachs, more severe and protracted structural changes occur, often accompanied by depression of acid secretion which lasts longer than after single freezes. Protracted achlorhydria occurs in isolated gastric pouches. Data are based on 93 biopsy specimens from 60 dogs.

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MALIGNANT HYPERTENSION can be treated medically with about as good effect as sympathectomy. Group 3 hypertension also responds favorably to drugs but to a lesser degree. Although prognosis is improved, however, mortality still remains high, particularly when blood pressure is poorly controlled and the patient is azotemic. Since mortality is also higher in patients with hypertension of short duration, the possibility of surgical correction should be studied carefully. Nevertheless, as more effective and better tolerated drugs are developed, the outlook for patients with severe hypertension should become much brighter. When treatment is effective, not only is life prolonged but retinal hemorrhages, exudates, and papilledema regress. Electrocardiographic changes of left ventricular origin may improve and cardiac size be decreased. The importance of congestive heart failure as a cause of death is reduced greatly by adequate control of blood pressure, but cerebrovascular accidents and other atherosclerotic complications are little affected. Either ganglion-blocking agents or various combinations of rauwolfia, hydralazine hydrochloride, and veratrum viride were given to 97 patients with group 3 hypertension or retinopathy and 64 with malignant hypertension. Electrocardiograms improved in about half of the patients, and heart size was reduced in one-fourth. Nevertheless, five-year survival rate was only 37.5 percent for patients with group 3 retinopathy and 28.6 percent for those with malignant hypertension.

RICHARD G. FARMER, M.D., RAY W. GIFFORD, JR., M.D., and EDGAR A. HINES, JR., M.D., Mayo Clinic and Foundation, Rochester, Minn. Ann. intern. Med. 112:118-128, 1963.

JAMES J. WARING *Series*

Variations in Mycobacteria Related Intimately or Remotely to the Disease Tuberculosis

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AT THE INTERIM SESSION of the American Medical Association in Denver in 1961, Dr. Jay Myers suggested that we give a friendly call to James Johnston Waring because, as Jay said, "We may not get another chance." How prophetic was that statement for soon after that the genial, scholarly, scientifically inclined Jim Waring died. He left behind a rich heritage of so many of the great virtues that have elevated the human race to its present level. Relatively few people in the great welter of humanity are responsible for the slow climb to what we call civilization. Jim Waring is one who ranks high on the scale of achievements. Best of all, he was a polished gentleman, a scholar, and every inch a scientist, who lent his talents and energy to the last toward advancing knowledge by research in his profession and encouraging the younger men in that field.

It was thought most fitting, therefore, to dedicate a study of the "Incidence of 'Unclassified Mycobacteria' and a Related Subject 'Natural Drug Resistance of Mycobacteria' in the State of Missouri" to his memory.

During the early years and decades of bacteriology, an extensive literature was accumulated on variations of the morphology, virulence, and tinctorial and growth characteristics of tubercle bacilli. Some of the literature findings were accepted but many were rejected. In general, the early studies were largely of academic interest. Not until antibiotics came into use did it become mandatory to recognize changes. Some changes were striking, some subtle, but there could be no disregard of resistance of bacteria to antibiotics. Neither was there any doubt concerning the appearance of rough and smooth colonies, colonies with varying shades of yellow, orange, and red, and varying degrees of reaction on laboratory animals. All the colors seen today were seen decades ago, but less frequently; a few strains were rough or smooth on culture and some were of low virulence or of no virulence to animals. Guinea pigs might commonly live a year or more and gain weight, yet their organs would be diseased in varying degrees when they were utlimately sacrificed.

REVIEW

A brief review of the subject is in order. Metchnikoff reported bacilli with branching forms; Spengler, "splitter" forms (fine granular); Much, nonacid-fast and granular forms; and Rabinowitch, the butter bacillus. Fontes in 1910 described filterable forms of tubercle bacilli. Ferran, Arloning, Courmont, and others reported rapid-growth cultures. Corper in 1917 found 3 percent of his cultures were avirulent for guinea pigs. Griffith in 1924 reported on Mycobacteria from skin lesions and found that some were be-

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tween the human and avian species. They were probably much like the more recent Type III of Runyon. Sweany in 1928 reported a study on the granules of the tubercle bacillus and other variations. Petroff and Branch described rough and smooth growths in 1929. In 1935 Pinner reported findings of a number of atypical acid-fast chromogens and tried to increase pathogenicity by animal passage. Feldman and associates reported a peculiar strain from a chronic lung disease (silicosis) in 1943. They gave cultural and virulence findings. The cultures were not virulent for guinea pigs but were partly virulent for chickens.

Tarashis and associates in several publications beginning in 1952 reported individual characteristics but did not form any special groups. Buhler and Pollak[1] reported 2 cases in 1953 which were isolated from human lesions. Later, along with Wood,[2] they reported 17 cases associated in human disease. All of these were called yellow bacilli and were probably photochromogens or Group I of Runyon.

A panel on atypical acid-fast bacilli was held in Milwaukee May 25, 1955, with Dr. William H. Feldman as moderator.[3] The panel referred to the then new Diagnostic Standards which said, "It is an error to discard acid-fast bacilli isolated from pathological material if they fail to fit the usual cultural or virulence pattern of Mycobacterium tuberculosis."

In order to help solve the problem, a committee was appointed, and Dr. E. Runyon was assigned the task of collecting the specimens for study. Finally, he accumulated several hundred strains of atypical, anonymous, or unclassified mycobacteria, which he proceeded to study and classify. The result was the first 3 groups, to which a fourth has been added; I think we can sense the fact that many more will result as new selective tests evolve. In fact, some strains already have been separated and given specific status. Others are in the process of being classified. In general, the feeling has been not to act too hastily but to wait until enough evidence is in to justify assigning a specific status to the particular strain. That was the recommendation of the microbiology committee of the American College of Chest Diseases in October 1961.

Runyon's progress report[4] included 14 items with many subitems describing the variations found in his first analysis. The most important features were photochromogenic strains and nonphotochromogenic strains. The reaction to the typical tests for Mycobacterium tuberculosis varied greatly. A third group was added in which strains were chromogenic (scotochromogens); most of these were associated with other more significant strains or were not found in disease processes at all.

These 3 groups comprised the first of Dr. Runyon's classification, except that the scotochromogens were finally classed alongside the Group I or photochromogens as a Group II, and the nonchromogens were classed as Group III. Since then, rapid growers (growing under seventy-two hours) have been added as a Group IV. Even now subdivisions are being made of some of the groups.

Crow and associates[5] reported the finding of 69 specimens over a period of five years from 1950 to 1955. Of these, 64 were of a similar type of nonchromogens. This group since has been named Battey bacillus, but it seems to be a representative of the Group III of Runyon. It resembles the avian bacillus but is not an avian bacillus. Other forms were not found or were largely disregarded.

Beginning in 1958[6,7] and continuing to the present time, a series of noteworthy studies appeared in Florida. The work was thorough and complete. These studies reported a rather high percentage of nonchromogens.

Lester and associates[8] in Chicago found 32 percent of 929 cases had atypical bacilli at one time or another. They only considered the chromogens (photochromogens and scotochromogens) with a minor indeterminate group (perhaps mostly of Group III). There were 18.3 percent photochromogens, 67.0 percent scotochromogens, and 14.7 percent in an indeterminate group. A regional distribution of photochromogens was reported.

A significant number of other workers entered into this new field of work including McMillen and Kurshner[9] (atypical); Young,[10] Marks and Trollope[11] (anonymous); Meissner,[12] Kovacs,[13] Wolinsky and associates;[14] Youmans,[15] and many others. The work of Meissner in Germany is one of the most extensive reports available on the subject of Mycobacteria related to human beings either by disease-producing possibilities or associated in lesions, tissues, or cultures of body fluids.

Since reports from different parts of the world differ in incidence of the various strains, growth characteristics, and pathogenicity, it would be useful to make an accurate study to establish base lines of incidence of as yet unclassified Mycobacteria for each community, as a marked difference seems to exist from place to place and country to country.

Only our region, consisting of the state of Missouri, is included in this report. We found no overwhelming predominance of any group, as has been found elsewhere, especially after a careful sifting of the preliminary findings and methods. An illustration will show how data may be misinterpreted if care is not used. In the report of the international committee of microbiology in 1960, a table was given from the material at the Missouri State Sanatorium. The table covers 1,000 consecutive cultures from 417 patients (see table 1).

The figures in the table might lead one to believe that more atypical tubercle bacilli existed than true tubercle bacilli, but a review of work done from July 1960 to February 1961 reveals the reason for the discrepancy. The work only included 1 to 3 colonies and the chromogens. Good growth of what was considered typical tubercle bacilli was not included. The true incidence would, therefore, include almost twice the number of typical tubercle bacilli and less than half the atypical tubercle bacilli that were shown in the table.

In order to come closer to the true incidence, a new study was made of 1,000 cases (not cultures) between March 1961 and June 1962, when all available cases were included (see table 2).

In existence were 22.9 percent atypical tubercle bacilli and 77.1 percent typical tubercle bacilli with 15.5 percent of both Groups IIIa and IIIb together. When only those cases having repeated cultures were considered, rejecting single growths as well as 1 to 3 colony growths, the incidence was cut remarkably—in fact, to fractions of 1 percent except Group IIIa which was 4.2 percent.

TABLE 1

ANALYSIS OF 1,000 CONSECUTIVE CULTURES

From July 1960 to February 1961 in 417 Sanatorium Patients

	On basis of cultures	*On basis of number of patients*
Group I	0.6%	0.6%
Group II	5.6%	9.7%
Group III	29.2%	41.5%
Group IV	3.6%	6.1%
Typical tuberculosis	61.0%	42.2%

Although few cases existed where there were unequivocal connections between the lesions and the Mycobacteria, enough interesting data were present in the few to warrant recording what we have. Each group and subgroup will be taken up in order, and the general nature of the microorganisms will be given as well as the pathogenicity of a few representative cases.

GROUP I—PHOTOCHROMOGENS

In the Group I cases of which there were 8 in all, a rather definite pattern of characteristics was present: a change to a chromogen (light yellow to pale orange) in light; a loss of virulence for the guinea pig except for a local lesion at a point of inoculation, where acid-fast bacilli are recovered by smear and culture. Other animals are not affected. The source of the cases was well scattered over the state. Only 2 were from the same county.

In the case of N. C., typical tubercle bacilli changed to a Type I with the above-mentioned growth and pathogenic characteristics. It is interesting to note that Wayne[16] has found variations in this Group I.

GROUP II—SCOTOCHROMOGENS

The scotochromogens were of little moment so far as any human disease was concerned, especially if Group IIIb was eliminated. We have found few cases that had any more than single colonies, and they were without virulence for animals and with no proved connections in human lesions. They are found in tap water, soil, and stomach washings, and are almost ubiquitous. With few exceptions, they may be classed as saprophytes.

TABLE 2

PATIENTS WITH ACID-FAST BACILLI ORGANISMS ON CULTURE

Group	*1 colony growth*	*2 to 3 colony growth*	*1 culture of 4c to +4*	*More than 1 culture*	*Referred cultures*	*Total*
I	—	—	—	8	—	8 = 0.8%
II	17	3	—	1	1	22 = 2.2%
IIIa	35	11	34	42	1	123 = 12.3%
IIIb	15	5	6	5	1	32 = 3.2%
IV	21	6	6	6	5	44 = 4.4%
TB	54	34	99	583	1	771 = 77.1%
Total	142	59	145	645	9	1,000

GROUP III—NONCHROMOGENS

The Group III strains are also found in 1, 2, or few colonies but sometimes heavy growths and repeated growths are present, which indicate that the bacilli came from the lesions of cases that have been positive and turned negative or from tissues with no other Mycobacteria ever having been present.

Fine shades of difference take place in some of these strains, some of which are of a nonchromogenic buff color that remains unchanged and are classed as IIIa by Hartwig[7] in contradistinction to a smaller and a more highly colored buff to yellow and orange that is difficult to distinguish from true scotochromogens of Group II. This is classed as Group IIIb and has some characteristics like the Group IIIa. It may seem like hairsplitting, but variants of all groups exist that do not conform exactly to the type. Group IIIb strains react in animals more like the IIIa strains do and not like the chromogens of Group II, which are rarely virulent for animals.

Four IIIa cases were without doubt associated in lesions. Although there may have been others, they were not present in sufficient numbers or quantity to consider.

The best illustration is that of B. A., to be given in detail later. Another patient, M. T., had a resection that gave a single colony on October 18, 1960, from tissue, but sputums were positive many times afterward and the culture was a typical Group IIIa. On January 26, 1961, a 2+ growth of Group IIIa was obtained from the tissue.

Another patient, M.A., also had many cultures positive of a Group IIIa type. The guinea pigs had local abscesses with positive bacilli on smear and culture but no other lesions. Mice had lesions in the liver and spleen after six weeks, but the animals were not ill. Smears and cultures were positive. The chickens were entirely negative. Another patient, B. C., had many cultures positive of typical Group IIIa. No animals were used.

GROUP IV—RAPID GROWERS

At least 3 Group IV patients had cases producing multiple cultures: M. K., A. G., and G. H. The growths were rapid (under seventy-two hours). Aryl sulfatase test was positive in all and animals were uniformly negative. The growths were classed as Mycobacterium fortuitum.

Another patient, D. H., was sent in from Kansas City. A culture from chest fluid planted on Löwenstein-Jensen media was received. A subculture grew in seventy-two hours at 25° C., niacin test was negative, cords negative, peroxidase negative, catalase positive, and the colonies were rough. A full resistance was offered to streptomycin, para-aminosalicylic acid, isoniazid, cycloserine, pyrazinamide, viomycin, and to all other nontuberculosis drugs tested. Only erythromycin and kanamycin produced sensitivity. Aryl sulfatase test at first appeared to be negative but later slowly developed some color and accordingly was considered as Mycobacterium fortuitum. A guinea pig inoculated March 29, 1962, is living and healthy.

When only cultures from resected lesions were considered, few significant cultures took place where there was no doubt about the origin of the bacilli. Only 2 Group IIIa strains were present in 174 resected lesions. One of these cases will be given in detail:

B.A., a 49-year-old married woman with 4 children enjoyed good health until March 1960 when she complained of productive cough and fever with yellowish sputum. The smears and cultures for acid-fast bacilli were positive; in all to date, there were 84 positive smears and cultures, or both.

Culture characteristics. Culture on this patient grew in four to six weeks on both Löwenstein's and egg yolk media with a fine confluent +1 to +4 growth (no isolated colonies). Subculture grew at 25° C. in three weeks. Dubos broth with serum culture was negative for niacin and cords after three weeks' incubation at 37° C. Löwenstein's medium, room temperature, was culture-positive for catalase, variable for peroxidase. The culture showed a snowdrift pattern. The bacilli were very small on acid-fast stain.

Animal inoculation. Animals were given ½ cc. of suspended bacilli (3 mg. moist weight). In guinea pigs, all organs appeared normal in eight weeks. At local site, smears were positive for acid-fast bacilli; cultures grew typical Group IIIa strains. In mice, small mesenteric abscesses appeared after six weeks; many large lesions in liver and spleen appeared after six months, but animals did not die. The lesions were slightly more prominent when mucin was used with the inoculum. Examination of the chicken was entirely negative, grossly and microscopically.

X-ray. The x-ray film revealed an irregular infiltrative process out from the hilum on the right, most of it surrounding an old primary complex in the lung parenchyma and hilum lymph nodes. Also, an infiltration in the left upper lobe extended down into the lingula. A bronchogram revealed a rather extensive bronchiectasis in the lingula of the left lung with a moderate degree of bronchiectasis in the right lung.

An operation was performed on March 31, 1961, to remove the lingula. The pathology report was as follows:

Gross pathology. "This specimen consists of 3 ragged parts which were of the lingula. It measures 6 by 2 by 1½ cm. in overall measurement. The smaller pieces are just 2 to 3 cm. A few nodular tubercles were observed in the periphery of the bronchi, which are dilated to approximately 1½ cm. at the greatest diameter. Two or 3 of these large bronchi in the lingula are greatly dilated. The smaller bronchi are also dilated but to a lesser degree. Atelectasis is seen throughout the specimen. The pathological diagnosis was a nonspecific bronchiectasis

BOSTON

with superimposed tuberculous process which is nodular in type."

Microscopic examination. Examination of multiple sections revealed a number of dilated and distorted bronchi, the walls of which were thickened in chronic inflammatory reaction with some presenting loss of the tunica elastica interna. In several sections, focal granulomatous areas were found in which multinucleated foreign body giant cells were present. Some of these cells occasionally contained refractile material. Also present were epithelioid cells, some lymphocytes, and a few plasma cells. In some of the bronchi, the epithelium was sloughed off and presented, instead, a lining of granulation tissue. Smears taken from the tissue were negative for acid-fast bacilli. Sections stained with Ziehl-Neelsen and methenamine silver stains were negative for histoplasma structures, but positive for acid-fast bacilli.

Diagnosis was lingulectomy showing chronic granulomatous bronchiectasis, type undetermined.

Subsequently, a spread of the disease took place in the left lung.

Bacteriology. The bacteriology of the process was constantly what was considered a Runyon Type III Mycobacterium and was consistently positive throughout the whole course of hospital stay even after the operation. The microorganism was sensitive to streptomycin (10 to 40 µg. per cubic centimeter) and isoniazid (5 to 25 µg. per cubic centimeter). Catalase was positive. The microorganism is now only sensitive to 25 µg. isoniazid: also to 20, 40, and 100 µg. cycloserine. It is resistant to all dilutions of other drugs including pyrazinamide (10 to 100 µg.) and para-aminosalicylic acid (10 and 25 µg.).

RESISTANCE TO DRUGS

In addition to the many variations in the bacilli themselves, another phase of natural variability is most important: natural resistance to chemicals and drugs. Everyone is aware of resistance to drugs after several weeks or months of treatment, but what is meant by natural resistance is resistance in bacilli that have never been exposed to the drugs so far as was known. A worldwide survey by Hobby[17] of the literature of this type of resistance showed little agreement from time to time and place to place.

Two different surveys were made, one on 500 patients (including those with chromogens) in 1956 and 1957 and another more recently on 124 patients (4 with chromogens). The figures are given in table 3 and show 2 things: (1) the increase in concentration of the antimicrobials decreases the reading for natural resistance and (2) there is the highest natural resistance for isoniazid, less for para-aminosalicylic acid, and still less for streptomycin. On the whole, the average native resistance ranges, for the 3 major drugs, between 1 and 3 percent on average concentration of the drugs. For low concentration of drugs, the resistance becomes much higher; in fact, a gradual transition to high resistance is present in the low concentration of the drugs. Our opinion is that resistance should not be recorded unless the dilution of the drug is stated.

Explanation of resistance is also still in doubt, for one view is that the resistant forms were always present and only emerged after treatment. That theory would not account for the resistant cultures arising from single-cell cultures.

Mutation must be considered as an important cause, although not necessarily the principal cause; after all, it is one of nature's favorite means of creating new forms. Until further work can clarify the situation, it might be well to adopt a viewpoint expressed by Gangadharam, Cohn, Davis, and Middlebrook[18] "that what are called strains of tubercle bacilli can in reality be composed of mixed populations of bacterial cells with high or low infectivity and various degrees of pathogenicity."

DISCUSSION

In spite of the fact that nearly a quarter of our cases are positive for acid-fast bacteria having

TABLE 3

RESISTANCE BEFORE CHEMOTHERAPY[*]

Streptomycin 10 µg./cc.	*Streptomycin 40 µg./cc.*	*Para-amino-salicylic acid 10 µg./cc.*	*Para-amino-salicylic acid 25 µg./cc.*	*Isoniazid 1 µg./cc.*	*Isoniazid 5 µg./cc.*	*Isoniazid 25 µg./cc.*	
4.8%	1.9%	5.2%	3.7%		5.8%	3.5%	This column is based on 500 patients, including chromogens, from a natural resistance study in 1956 and 1957.
4	1	7	5	11	6	3	This column is based on 124 patients, including 4 chromogens.
2 or 1.6%	1 or 0.8%	4 or 3.3%	3 or 2.5%	7 or 5.8%	3 or 2.5%	2 or 1.6%	This column is based on 120 patients—no chromogens included.

[*] This chart gives the percentage of active tuberculosis patients entering the Missouri State Sanatorium for the first time showing some degree of resistance to the different dilutions of the drugs streptomycin, para-aminosalicylic acid, isoniazid, even before any chemotherapy was started.

unclassified Mycobacteria, relatively few cases in our state have cultures of Mycobacteria that enter into the lesions or that can be proved to be the principal cause of the lesions. This is in marked contrast to reports from the deep South, where the incidence is higher for Group III cases, and in certain regions of the North, where Group I cases have been reported to predominate.

The real problem is that somewhere between 5 and 7 percent of our cultures seem to be associated with or are the actual cause of pulmonary disease in our patients. This is a significant percentage and one that must be recognized.

The presence of a variety of Mycobacteria in and around tuberculous lesions has been clearly shown, but the source of these variants is still an open question. No doubt many arise from the vast numbers of Mycobacteria that have evolved over the eons of time since bacteria first appeared, such as those strains that cause leprosy or those that infect the turtle, fish, vole, fowl, and other animals, or the saprophytic forms such as Myco. phlei, Myco. butyricum, Myco. leucoflavin, Myco. luteum; or those with variable pathogenicity such as Myco. fortnitum, Myco. johnei, Myco. ulcerans, Myco. balnei, and many others that have been described over the last seventy-five years. Evidence is increasing that certain strains of the atypical or unclassified Mycobacteria found associated in human lesions originate from nature, such as Runyon Groups II, III, and IV. The Group I cases still can't be accounted for satisfactorily except as due to some internal change within the original cultures. The same may be said of Griffith's[19] avian-like strains isolated from skin lesions, the 3 or 4 separate strains isolated from a Hodgkin's lymph node by Sweany,[20] the Indian type described by Bogen and Skillen,[21] and the vast number of variants represented by resistant forms to antimicrobial treatment, considered by many as mutations of the parent strains.

SUMMARY AND CONCLUSIONS

An attempt has been made to establish the incidence of the various types of Mycobacterial populations in humans for the state of Missouri. The high percentages of certain groups (especially Runyon I and III) as reported by others were not found. In most of the cultures, only 1 colony was found and many of these were probably saprophytes.

In 1,000 consecutive cases, the overall figures were 22.9 percent for all the atypical, unclassified, or anonymous groups; 77.1 percent were typical tubercle bacilli.

By counting only those cases having many colonies, 1+ growth or more, repeated findings, and referred cultures, the percentage of atypical tubercle bacilli was only 7 percent for all groups. This is still significant and must be reckoned with.

Breaking atypical bacilli down into the various groups, there are 0.8 percent for Group I; 0.1 percent for Group II; 4.2 percent for Group IIIa; 0.5 percent for Group IIIb; and 0.6 percent for Group IV. The only significant group of cultures referred from other laboratories were Group IV strains where 4 out of 5 were Mycobacterium fortuitum. Eleven out of 44 of all rapid growers were Mycobacterium fortuitum. In 174 resected specimens, only 2 Type IIIa (Battey) strains were isolated. One of these, as was one Group IV, was described in detail.

Natural resistance to antibiotics was found to vary according to the concentration of the drug, but a fair average for significant dilutions was around 1.0 percent for streptomycin; 2 percent for para-aminosalicylic acid; and 3 percent for isoniazid. Low dilutions resulted in much higher percentages of resistance. For example, 10 μg. streptomycin gave 1.6 percent; 10 μg. para-aminosalicylic acid gave 3.3 percent; and 1 μg. of isoniazid gave 5.8 percent natural resistance. While 1.0 μg. each of streptomycin and para-aminosalicylic acid would give still higher figures as would 0.1 mg. isoniazid. These low dilutions are only of academic significance, even if an explanation is not evident.

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CANCER OF THE COLON AND RECTUM carries a more grave prognosis in patients less than 30 years old when the disease is primary carcinoma alone rather than coexisting or associated with multiple polyposis or chronic ulcerative colitis. In patients with primary carcinoma alone, the tumor is likely to be of a high grade of malignancy, and duration of symptoms is short. Onset is insidious, with bleeding, diarrhea, and pain the commonest complaints, but progress of the disease is rapid and delay in recognition may lead to death. As in older patients, malignant neoplasia in young persons most often involves the proctosigmoidoscopic segments of the large bowel. The lesions in patients with primary carcinoma alone are frequently highly malignant adenocarcinomas, whereas the adenocarcinomas complicating polypoid or ulcerative disease are usually less malignant and multicentric. Review was made of 126 cases of cancer of the colon and rectum, 67 not associated with polypoid or ulcerative disease, in patients under age 30 who were seen from 1932 to 1961.

CHARLES W. MAYO, M.D., and REDENTOR J. G. PAGTALUNAN, M.D., Mayo Clinic and Foundation, Rochester, Minn. Surgery 53:711-718, 1963.

SOME ISLET CELL TUMORS may produce a substance other than insulin that induces gastric secretion. Others secrete insulin, with or without symptoms of hypoglycemia and secondary gastric stimulation, and a few are nonfunctioning. The gastric secretagogue, which occurs in Zollinger-Ellison syndrome, appears to be similar to gastrin. Gastric stimulation due to this substance can be distinguished from that secondary to insulin-induced hypoglycemia by injection of tumor extracts into vagally denervated (Heidenhain) dog stomach pouches, which are unresponsive to hypoglycemia. When tumor extracts stimulate vagally innervated (Pavlov) pouches, but not Heidenhain pouches, to secrete hydrochloric acid, the agent is obviously insulin rather than the gastric secretagogue. Tumor extracts from 2 patients with spontaneous hypoglycemia also produced hypoglycemia and gastric secretion in dogs with Pavlov pouches. That the gastric effect was secondary to hypoglycemia was indicated by the prompt fall in hydrochloric acid when blood glucose concentrations rose. Stimulation of Heidenhain pouches was obtained with extracts from 5 primary and 4 of 5 metastatic islet cell tumors from patients with the Zollinger-Ellison syndrome. Hypoglycemia was also produced in dogs by 2 of the primary tumor extracts despite the fact that the patients had not been hypoglycemic.

GEORGE A. HALLENBECK, M.D., CHARLES F. CODE, M.D., and JOSEPH C. KENNEDY, Mayo Clinic and Foundation, Rochester, Minn. Gastroenterology 44:631-636, 1963.

Protein Supplementation and Blood Pressure

W. M. RINGSDORF, JR., D.M.D., and E. CHERASKIN, M.D.
Birmingham, Alabama

SOME INVESTIGATORS contend that a high protein intake leads to a reduction in blood pressure.[1–3] Other researchers argue that increased protein consumption serves as a hypertensive agent.[4–7] Finally, a large group of authorities holds that protein exerts no effect.[8–12]

Thus, the effect of protein upon blood pressure continues to be a controversial issue. This study is designed to cast additional light upon the subject through a study of the effect of protein versus placebo supplementation upon blood pressure in a group of healthy young men.

METHODS

Forty-four junior dental students participated in this project. Blood pressure was recorded in all subjects by 1 examiner at 10 A.M. on Monday of a week. On a random basis, one-half of the students were given 40 gm. per day of a protein supplement (see table). The remaining 22 students received 40 gm. daily of an indistinguishable placebo (methylcellulose). The blood pressure was retaken Friday of the same week at 10 A.M. by the same examiner, with no knowledge of the original values or the type of supplementation.

RESULTS

Figures 1 and 2 list the actual systolic and diastolic findings in all of the subjects before and after protein versus placebo supplementation. It is well to point out that, according to present blood pressure standards, none of the subjects was hypertensive or hypotensive. Also included in these charts are the means, standard deviations, and probability values. Statistically significant changes occurred only in the protein-treated groups. Specifically, the systolic values changed from 120.3 ± 8.8 to 114.7 ± 7.8 ($P < 0.050$) and the diastolic values from 72.3 ± 6.4 to 68.5 ± 4.4 ($P < 0.050$). In contrast, the preplacebo versus postplacebo values for both systolic and diastolic pressures were not significantly different.

DISCUSSION

The evidence presented here appears to indicate that protein supplementation, in the amount given and for the period administered, exerts a small but nonetheless significant effect upon both systolic and diastolic pressure. The conclusions are even more interesting in view of the fact that, according to present standards for blood pressure, all subjects were within physiological limits.[13,14] This raises the question as to whether present parameters for blood pressure are correct.

These data are also interesting because of the similarity to blood pressure changes previously reported after the administration of a low-refined-carbohydrate, high-protein dietary regime.[15]

The coefficient of correlation between the initial pressure and the amount of change after three days of supplementation was significant for both systolic ($r = -0.472$, $P < 0.050$) and diastolic ($r = -0.726$, $P < 0.005$) readings in the protein group. In contrast, the low correlations for the placebo group indicated no significant change (systolic, $r = -0.013$, $P = 0.500$) (diastolic, $r = -0.451$, $P > 0.050$). The negative regression of the individually plotted blood pressure changes is demonstrated in figures 3 and 4.

TABLE
COMPOSITION OF PROTEIN TABLETS

Average weight	760 mg.
Protein content derived from soybean protein concentrate, casein, gelatin	85 percent
Essential amino acid content (per 12 tablets)	
Isoleucine	485 mg.
Leucine	715 mg.
Lysine	560 mg.
Methionine	135 mg.
Phenylalanine	450 mg.
Threonine	350 mg.
Tryptophan	95 mg.
Valine	460 mg.

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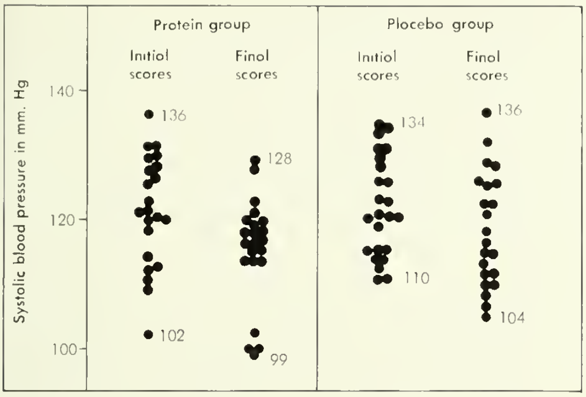
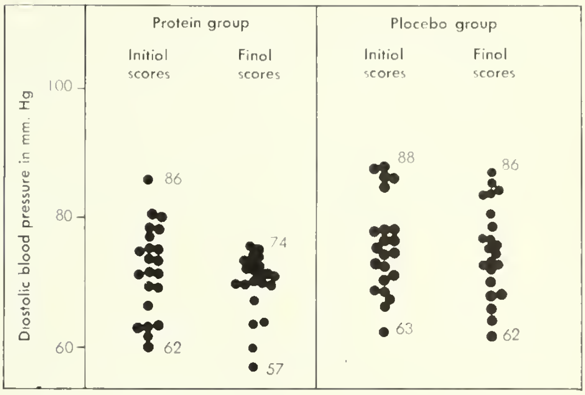


mean	120.3	114.7	120.9	117.3
S.D.	8.8	7.8	8.0	9.4
P	<0.050		>0.100	

Fig. 1



mean	72.3	68.5	76.1	74.6
S.D.	6.4	4.4	6.8	7.0
P	<0.050		>0.400	

Fig. 2

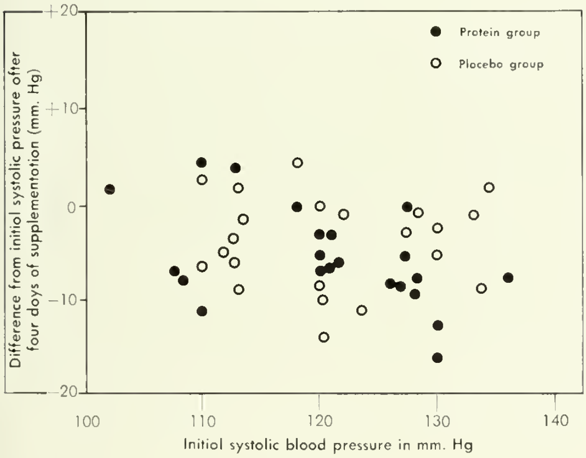


Fig. 3

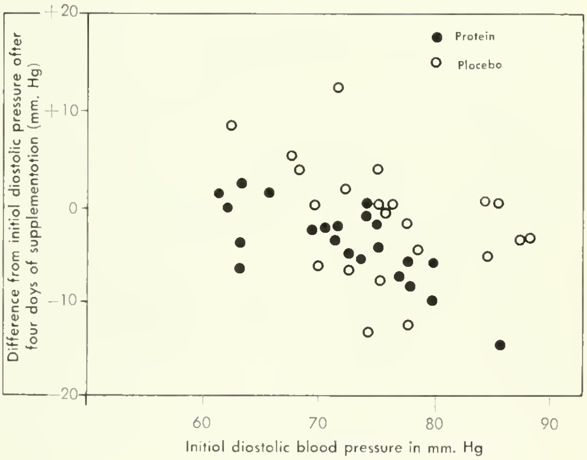


Fig. 4

The systolic pressures for the protein-supplemented group appear to decrease when above approximately 118 mm. Hg and increase when below this value (figure 3). The point of change for the diastolic pressures is approximately 70 mm. Hg (figure 4).

The small, significant changes in both systolic and diastolic blood pressure are emphasized by a relatively narrow margin of error in measuring. Reproducibility of the systolic reading was within 2 mm. for 82 percent of the group. Eighty-six percent of diastolic readings were consistent with this degree of error.

SUMMARY

A study of 44 dental students (healthy males) subjected to protein versus placebo supplementation for four days resulted in small but orderly and significant changes in systolic and especially diastolic blood pressure for the protein-treated group. The systolic and diastolic pressure changes made it appear, at least presumptively, that approximately 118/70 mm. Hg is the ideal physiological nonfasting blood pressure for young adult males. These observations confirm earlier reported findings of a narrower blood pressure range following a low-refined-carbohydrate, high-protein diet.

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SECONDARY LYMPHEDEMA OF THE LEG is most commonly caused by infection and neoplastic disease rather than by the lymphatic abnormalities that are the cause of idiopathic lymphedema. The commonest causative infections are lymphangitis and cellulitis or active trichophytosis, while the commonest neoplasms are prostatic carcinoma in men and lymphoma in women. Surgical excision of nodes, extensive irradiation, and some parasitic infections also may produce secondary lymphedema. Lymphedema after malignant invasion of nodes is commonest in the seventh decade of life; lymphedema after infection occurs oftenest between the ages of 30 and 60. In contrast with idiopathic lymphedema, which begins before age 40 in about 98 percent of patients, affects women 10 times more frequently than men, and is bilateral in 50 percent of patients, secondary lymphedema usually begins after age 40, affects both sexes equally, and is usually unilateral unless caused by infection. Data are based on observations of 80 patients with secondary lymphedema of the leg.

RICHARD D. SMITH, M.D., JOHN A. SPITTELL, JR., M.D., and ALEXANDER SCHIRGER, M.D., Mayo Clinic and Foundation, Rochester, Minn. J. Amer. med. Ass. 185:80-82, 1963.

SCLEROSING CHOLANGITIS, a rare condition, is often associated with Riedel's struma and fibrous retroperitonitis. Histological similarities suggest that these conditions are basically the same pathological process occurring in different parts of the body. The common occurrence of eosinophilia in sclerosing cholangitis also suggests an allergic or hypersensitive reaction as well as a diffuse collagen disturbance; thus, corticosteroid therapy seems justified. Progressive obstructive jaundice is the usual sign of sclerosing cholangitis. The possibility of localized stricture from a previous operation must be determined; the condition may also resemble cholelithiasis in the common duct or biliary or pancreatic carcinoma. Diagnosis can be confirmed only by demonstration at surgical exploration of the typical diffuse, irregular thickening of the wall and almost complete obliteration of the lumen of the common duct. Biopsy specimens should be taken to eliminate carcinoma. Once diagnosis has been established, prolonged steroid treatment should be instituted. A dose equivalent to 100 mg. of cortisone should be given daily and later reduced gradually over a period of months. If jaundice recurs, treatment may be repeated. Observations are based on review of the literature and on treatment of 2 patients with sclerosing cholangitis.

LLOYD G. BARTHOLOMEW, M.D., JAMES C. CAIN, M.D., LEWIS B. WOOLNER, M.D., DAVID C. UTZ, M.D., and DEWARD O. FERRIS, M.D., Mayo Clinic and Foundation, Rochester, Minn. New Engl. J. Med. 269:8-12, 1963.

Transactions of the North Dakota State Medical Association

(Concluded)

TRANSACTIONS OF THE SEVENTEENTH ANNUAL MEETING OF THE WOMAN'S AUXILIARY TO THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

Dickinson, North Dakota, May 4, 5, and 6, 1963

(Continued from the January 1964 Issue)

Civil Defense Report

Only 1 organized constituent district turned in a report on civil defense. This auxiliary reported having a civil defense project for either its members or the community.

Mrs. Hankins reported that her auxiliary had offered the medical self-help classes since May and that a total of 220 people had completed the course. She said that there was excellent co-operation and that registered nurses, Red Cross first aid instructors, and home nursing instructors worked together.

No auxiliaries reported working with other groups in the fields of civil defense, survival, home preparedness, radiation, health mobilization, emergency medicine, the United States Armed Forces, national security, world economies, or world friends. No original material such as skits, research, or displays was reported as being used by auxiliaries.

Ramona M. Zauner, Chairman

Publicity Report

A questionnaire was sent to each of 10 districts in January to determine the kind of publicity received on auxiliary meetings and projects. Also, information was needed on the kinds of projects sponsored and by whom publicity was handled.

The following is a compilation of the answers:

1. Please indicate the kind of coverage your newspaper has given on auxiliary meetings. Response: Excellent (3), Good (4), None (2); 2. Has your district auxiliary had any special activity which has received publicity? yes (6), no (3); Please indicate the type of project: dance or ball (2), sales project (0), support of community project (1), mental health re senior citizens (1), Sabin clinic sponsored by medical society and assisted by auxiliary (1), medical careers club rally (1), program on food fads (1), future nurses club (1). Coverage: excellent (3), good (3). 3. Has your councillor taken charge of your publicity? yes (2), no (6). Has your publicity chairman taken care of all publicity? yes (4), no (1), no chairman (4). Has your publicity chairman consulted with the councillor of your district on publicity items? yes (0), no (5), no chairman (4). 4. Have you received any publicity items from your state publicity chairman? yes (5), no (3), inactive (1). If so, were these accepted by your local newspaper? yes (1), no (5), inactive (1). Reason for 5 no's: untimely. 5. Could you suggest any special publicity you would like to have from the state publicity chairman? yes (0), no (6).

Conclusions: The publicity received has been excellent to good; 8 special projects received publicity; councillors have taken charge of publicity in 2 districts; publicity chairmen have had charge of publicity in 4 districts; 4 districts have no chairman of publicity; the desired publicity has been received, and it is recommended that the districts continue in the manner which works best for each; in the matter of timeliness and local interest, a form should be used (mimeographed) and supplied by the publicity chairman to 1 representative from each district, at board meeting and convention, who in turn will fill this in and return to her district publicity director; the news concerning the fortieth annual convention of the Woman's Auxiliary to the American Medical Association June 16 to 20 in Atlantic City, New Jersey, will be released by the Associated Press statewide closer to convention time, along with details of North Dakota delegates who will be attending the meetings.

Mrs. Mary E. Lommen, Chairman

Legislation Report

The North Dakota State Legislature has adjourned for another two years. The legislative committee of the North Dakota State Medical Association feels that the medical association did not fare too badly. Some of the aims were not accomplished; namely, to get the state hospital transferred to the health department or some subdivision thereof.

A member of the North Dakota State Medical Association was in attendance at the legislative session every day taking care of individuals who might need medical attention as well as to show the interest of the North Dakota State Medical Association in legislative doings. This was felt to be a step in the right direction in showing the people of our state that we are interested in what is going on.

In "Kerr-Mills in Action—1962," The Honorable Carl T. Curtis, United States Senator from Nebraska, showed the difference between the Kerr-Mills program and the proposed King-Anderson bill. Under the Kerr-Mills law, a program can be set up to fit the specific needs of a patient. The Kerr-Mills law is not limited to fine print benefits. It is intended to take care of people over age 65 who need help and who are and should be the concern of the government. If the King-Anderson bill is enacted, it will mean a man can have an annual income of $100,000 or more, unlimited capital assets, and need not be retired; yet if he is age 65, his hospital and certain related medical expenses will be paid. By whom will it be paid? It will be paid by the workers, the self-employed workers, and the employers of the country.

Senator Curtis does not believe the government should tax young people who are raising a family, buying a home, building their life insurance programs, and educating their children to pay the hospital bills of individuals who are able to pay their own bills. This is the essence of the Kennedy administration's proposal, the King-Anderson bill.

It has been established that only 25 percent of the expenses of illness of persons eligible for benefits would be paid if the King-Anderson bill were enacted into law. It has been aptly pointed out "that a medically indigent person is no more able to pay 75 percent of his medical expense than he is to pay 100 percent of such expenses."

It is felt that many of the proponents of the measure in Congress do not realize the shortcomings and have been confused by a lot of misinformation. Senator Curtis also feels that many of the people back home have been misinformed, judging by the letters received.

In a notice sent out by Mrs. Lawrence A. Rapee, chairman, and Mrs. Robert Reagen, vice-chairman on legislation, on March 18, 1963, concerning the new King-Anderson bill, it was stated that the proponents of "Fedicare" would have you believe nothing much will be done to push this new legislation during this session of Congress. The King-Anderson bill will be forced to a vote the very minute the proponents feel that they have the votes to assure its passage. They said there were no plans at the present time for a concentrated letter writing campaign to Congress. This will come later. We must set up the procedure we will follow in order to activate it on a minute's notice.

I had expected to receive lot of information to send to the districts of the North Dakota State Medical Auxiliary. The reason that more information wasn't received is due to the fact that our Eighty-eighth Congress is really just starting to "roll." I just received some reports from Mrs. William B. Thuss, president, on "Operation Hometown" and will bring them to the state meeting in Dickinson in May for distribution. I have enjoyed the "very little" I have done, however.

Mrs. James J. Moses, Chairman

Report on the Bulletin

North Dakota can be very proud of its *Bulletin* subscription record this year. We now have 143 subscriptions, which is a little better than 42 per cent of the 338 North Dakota auxiliary membership.

Possibly the reason for this increase in subscriptions was the manner in which subscriptions were handled this year. Subscription blanks and envelopes were given to each *Bulletin* chairman or district president, and subscriptions were sent directly to Chicago by them rather than through the state chairman. Chicago, in turn, informed the state chairman of the number of subscriptions received by that office. Also, the names of the current subscribers were sent out by the state chairman to each district officer after each mailing of the *Bulletin*. This gave each district something more tangible to work on, as the due date was shown on each name.

It will soon be time for the new officers to take over, and I would like to suggest that they strongly urge that the *Bulletin* rate, which is only $1.00 per year, be included with the dues. All officers should be subscribers so they may better know the aims and workings of the national auxiliary.

My deep appreciation to all *Bulletin* chairmen and district presidents who gave such good co-operation and made this our best *Bulletin* record. May this fine support continue.

Mrs. George H. Holt, Chairman

Report on the American Medical Education Foundation

This year a new fund-raising project was introduced: the selling of note paper. This note paper is furnished free of charge from the Chicago office, so each sale is clear profit. As of this writing, 9 districts have been heard from. Twenty-three double decks of playing cards were sold. Sixty-three packages of note paper were sold. Memorials amounted to $28. Contributions, including $25 from the state, totaled $586.39. This makes a total of $740.30 that has been sent to national headquarters. Per capita per member $2.26. The top 3 districts on a per capita basis received certificates of achievement: First place: Ninth district ($4.91). Second place: First district ($4.44). Third place: Second district ($2.96).

Mrs. E. T. Keller, Chairman

Historian's Report

The opening session of the sixteenth annual meeting of the Woman's Auxiliary to the North Dakota State Medical Association was held in conjunction with the Auxiliary to the South Dakota State Medical Association at the Apple Creek Country Club, Bismarck, Monday, June 4, 1962, at 9 A.M. Presiding were Mrs. Warren Anderson, state president, South Dakota, and Mrs. Thomas Longmire, state president, North Dakota.

Official minutes are recorded in the February issue of The Journal-Lancet. The convention program, minutes, and reports are filed in the archives.

The fall board meeting was held at Mac's Cafe in Jamestown, Friday, October 27, 1962. Mrs. J. W. Jansonius, state president, presided. Dr. E. J. Larson, president of the North Dakota State Medical Association, addressed the board members on "Professions of Medicine." Mrs. Jansonius gave her report on the national convention.

Honored guest speakers at the state convention were Mrs. Stanley R. Truman, western regional vice-president of the Woman's Auxiliary to the American Medical Association, and Dr. E. H. Boerth, new president of the state medical association.

Memberships in the woman's auxiliary this year total 331; of this number, 2 are associate members, 2 are honorary members; there are 318 regular members. We have a decrease of 7 memberships and 23 new members.

Achievements on state and national levels are quoted from the November issue of *News, Views, and Cues*. Mrs. M. M. Heffron was delegate for memberships, Woman's Auxiliary to the American Medical Association, at the national convention in Chicago June 25 to 28.

Mrs. J. M. Van der Linde of Jamestown is again serving as secretary-treasurer of the North Dakota Society for Crippled Children and Adults and is a member of the board of directors.

R. Pearl DeMoully Spielman, Historian

Program of the Woman's Auxiliary

SUNDAY, JUNE 3, 1962

12:00 Noon. Registration, Lobby, Grand Pacific Hotel, Bismarck. Mrs. P. O. Dahl, chairman.

1:00 P.M. Nominating committee meeting. Quain and Ramstad Clinic Building. Mrs. R. W. McLean, chairman.

2:00 P.M. Finance committee meeting, Quain and Ramstad Clinic Building. Mrs. W. L. Macaulay, chairman.

3:00 P.M. Student Loan Fund committee meeting, Quain and Ramstad Clinic Building. Mrs. C. R. Richardson, chairman.

4:00 P.M. Preconvention board meeting, Quain and Ramstad Clinic Building. Mrs. Thomas Longmire, president, presiding.

6:00 P.M. Mixer and buffet supper. Hall of Four Seasons, Grand Pacific Hotel.

MONDAY, JUNE 4, 1962

8:30 A.M. Past presidents' breakfast, Prince Hotel. Mrs. C. A. Arneson, chairman.

9:00 A.M. Joint session. Registration. Grand Pacific Hotel.

9:00 A.M. Opening session, Auxiliaries of the South Dakota and North Dakota State Medical Associations. Apple Creek Country Club. Presiding: Mrs. Warren Anderson, state president, South Dakota, and Mrs. Thomas Longmire, state president, North Dakota.

Pledge of Loyalty: Led by Mrs. E. A. Johnson, president-elect, South Dakota, and Mrs. John W. Jansonius, president-elect, North Dakota.

Invocation: Mrs. R. H. Waldschmidt, first vice-president, North Dakota auxiliary.

Welcome: Mrs. Roger Berg, Sixth District president, North Dakota auxiliary.

Response: Mrs. Warren Anderson, state president, South Dakota.

Memorial Service: Mrs. Paul Holm, South Dakota, and Mrs. Henry Kermott, North Dakota.

Greetings: Dr. C. J. McDonald, president, South Dakota State Medical Association, and Dr. E. H. Boerth, president, North Dakota State Medical Association.

Reports of state officers and chairmen for both North Dakota and South Dakota (North Dakota reports printed in THE JOURNAL-LANCET).

Resolutions.

12:30 P.M. Luncheon. Apple Creek Country Club. Mrs. E. A. Johnson, president-elect, South Dakota auxiliary, and Mrs. John W. Jansonius, president-elect, North Dakota auxiliary, presiding.

Dr. Leonard Larson, president, American Medical Association, guest speaker.

Style show.

2:30 P.M. Second business session. Mrs. Warren Anderson, state president, South Dakota, and Mrs. Thomas Longmire, state president, North Dakota auxiliary, presiding.

Unfinished business.

Election of officers.

6:30 P.M. Banquet. Municipal Country Club. Mrs. Roger Berg, Sixth District president, North Dakota, presiding. Honored guest and speaker: Mrs. Stanley R. Truman, western regional vice-president, Woman's Auxiliary to the American Medical Association.

Installation of officers—North and South Dakota.

TUESDAY, JUNE 5, 1962

Brunch, Hall of Four Seasons, Grand Pacific Hotel. Mrs. Rodney Stoltz, South Dakota, presiding.

12:00 P.M. Postconvention board meeting, Grand Pacific Hotel. Newly elected officers, state chairmen, district presidents, and councillors urged to attend this board meeting and planning session.

2:00 P.M. Tour of Governor's mansion.

CONVENTION CHAIRMEN

General chairmen: Mrs. R. B. Tudor, and Mrs. C. L. Smith; registration, tickets: Mrs. P. O. Dahl; transportation: Mrs. George Spielman; finance: Mrs. M. A. K. Lommen; entertainment: Mrs. Paul Johnson, Mrs. C. H. Peters, and Mrs. Robert Kling; luncheon: Mrs. Milton Nugent; banquet: Mrs. R. D. Schoregge; flowers: Mrs Jerry Knudson; hospitality, courtesy: Mrs. R. F. Nuessle; past president's breakfast: Mrs. C. A. Arneson; and publicity: Mrs. Joseph Cleary.

Dickinson, North Dakota chairman: Mrs. N. B. Ordahl, South Dakota chairmen—General chairmen: Mrs. D. L. Scheller, Arlington, and Mrs. H. R. Wold, Madison; registration: Mrs. R. H. Quinn, Sioux Falls; courtesy: Mrs. A. K. Myrabo, Sioux Falls; hospitality: Mrs. P. H. Hohm, Huron; Tuesday brunch: Mrs. H. R. Wold, Madison; and favors: Mrs. D. L. Scheller, Arlington.

1962-63 Officers and Chairmen of Standing Committees

STATE OFFICERS

President—Mrs. John W. Jansonius, 609 Fourth Ave. S.E., Jamestown

President-elect—Mrs. Robert E. Hankins, Mott

First vice-president—Mrs. Clyde L. Smith, 622 Raymond Ave., Bismarck

Second vice-president—Mrs. Reuben Waldschmidt, 600 N. Washington, Bismarck

Recording secretary—Mrs. R. L. McFadden, 910 Third Ave. N.W., Jamestown

Corresponding secretary—Mrs. C. W. Hogan, 303 Tenth Ave. N.E., Jamestown

Treasurer—Mrs. Roger M. Berg, 219 W. Ave. B, Bismarck

STATE COMMITTEE CHAIRMEN

Membership—Mrs. Robert E. Hankins, Mott

Program—Mrs. Clyde L. Smith, 622 Raymond Ave., Bismarck

Nominating—Mrs. Thomas Longmire, 810 Sixth St., Devils Lake

Parliamentarian—Mrs. E. J. Larson, 321 Second Ave. S.E., Jamestown

Committee on Aging—Mrs. D. J. Halliday, Kenmare

Liaison to SAMA—Mrs. T. H. Harwood, 2704 Belmont Road, Grand Forks

Historian—Mrs. George H. Spielman, 1715 E. Ave. E, Bismarck

A.M.E.F.—Mrs. E. T. Keller, Rugby

Health careers—Mrs. Walter C. Hanewald, Richardton

By-laws—Mrs. V. J. Fischer, 303 Eighth Ave. S.E., Minot

Community Service—Mrs. M. M. Heffron, 2033 N. Fourth St., Bismarck

Publicity—Mrs. M. A. K. Lommen, 831 Griffin St., Bismarck

Safety—Mrs. D. N. Mergens, Hillsboro

Mental Health—Mrs. R. D. Schoregge, 621 W. Ave. F, Bismarck

Legislation—Mrs. J. J. Moses, 1111 W. Highland Acres Road, Bismarck

Civil defense—Mrs. Richard J. Zauner, 1414 S. Sixth St., Fargo

Finance—Mrs. Roger M. Berg, 219 W. Ave. B, Bismarck, chairman; Mrs. E. O. Hieb, 211 Fourteenth Ave. Drive N.E., Jamestown; Mrs. Henry Kermott, 200 Seventh Ave. S.E., Minot; Mrs. J. A. Sandmeyer, 1005 Lanark, Grand Forks; and Mrs. C. K. Fercho, 1747 S. Seventh St., Fargo

Student loan fund—Mrs. C. R. Richardson, 12 Nineteenth St. S.W., Minot, chairman; Mrs. R. D. Nierling, 415 Ninth St. S.E., Jamestown; Mrs. Ralph Leigh, 301 Park Ave., Grand Forks; Mrs. Lee A. Christoferson, 1307 S. Sixth St., Fargo; Mrs. R. O. Goehl, 1015 Reeves Drive, Grand Forks; and Mrs. M. H. Poindexter, 1350 S. Ninth St., Fargo

OFFICIAL PUBLICATION

News, Views, and Cues:

Managing editor—Mrs. J. H. Mahoney, 601 Eighth St., Devils Lake; co-editor—Mrs. Jens Sahl, 310 Ninth St., N.W., Minot

District Presidents and Councillors and Chairmen of Special Committees

FIRST DISTRICT

President—Mrs. James F. Houghton, 1707 S. 9th St., Fargo; Councillor—Mrs. Richard J. Zauner, 1414 S. 6th St., Fargo

SECOND DISTRICT

President—Mrs. William R. Fox, 320 E. 9th St., Rugby; Councillor—Mrs. Connor A. Corbett, 316 7th St., Devils Lake

THIRD DISTRICT

President—Mrs. Rodney C. Clark, 511 S. 18th Ave., Grand Forks; Councillor—Mrs. R. C. Painter, 1121 Belmont Road, Grand Forks

FOURTH DISTRICT

President—Mrs. Kenneth N. Amstutz, 505 9th Ave. S.E., Minot; Councillor—Mrs. V. J. Fischer, 303 8th Ave. S.E., Minot

FIFTH DISTRICT

President—Mrs. W. R. Jensen, 521 4th Ave. N.E., Valley City; Councillor—Mrs. J. Coven, 912 6th Ave. N.E., Valley City

SIXTH DISTRICT

President—Mrs. M. A. K. Lommen, 831 Griffin St., Bismarck; Councillor—Mrs. M. M. Heffron, 2033 N. 4th St., Bismarck

SEVENTH DISTRICT

President—Mrs. John J. Jestadt, 419 15th St. N.E., Jamestown; Councillor—Mrs. John M. Van der Linde, 1016 4th Ave. N.E., Jamestown

EIGHTH DISTRICT

President—Mrs. Charles R. Petty, 209 E. 14th St., Williston; Councillor—Mrs. Joseph D. Craven, 915 W. 2nd Ave., Williston

NINTH DISTRICT

President—Mrs. Walter C. Hanewald, R. R. 1, Box 18, Dickinson; Councillor—Mrs. Richard F. Raasch, 30 W. 8th St., Dickinson

TENTH DISTRICT

President—Mrs. Daniel N. Mergens, Hillsboro; Councillor—Mrs. Robert W. McLean, Hillsboro

SPECIAL COMMITTEES

Reading—Mrs. John M. Van der Linde, 1016 4th Ave. N.E., Jamestown, and Mrs. Richard D. Nierling, 415 9th St. S.E., Jamestown

Resolutions—to be chosen later

Nominations—Mrs. Thomas Longmire, chairman; Mrs. J. M. Van der Linde, Mrs. B. A. Mazur, Mrs. T. Q. Benson, and Mrs. F. R. Erenfeld

Alternates: Mrs. Charles Arneson, Mrs. E. J. Larson, Mrs. R. D. Schoregge, and Mrs. Lee Christoferson

Report of Mental Health Committee

The only program or project suggested by the national chairman was a series of pamphlets on "Milestones to Maturity" to be distributed to the high schools. This involved finances, which is primarily the reason we didn't go on with it.

Just six weeks ago I received the only other material from national headquarters. It recommended that a film, "A Cry for Help" (on suicidal attempts), be shown at our meeting. Dr. Thakor, a Bismarck psychiatrist, commented on the film and expressed some other interesting facts on the problems of mental health.

I contacted Dr. Vandergon of the North Dakota Mental Health Association, to give his opinions on mental health in the state. I also contacted Dr. Peters, as he appeared at the House hearing on the transfer bill; I expressed a desire to have the bills aired.

As chairman of the committee on mental health, I was most interested in the North Dakota Medical Association's legislative program in this area. The medical profession proposed a sound and realistic approach to this problem. It went on record as (1) favoring the transfer of the state hospital from the board of administration to the North Dakota State Health Department (Senate Bill 320); (2) authorizing the establishment of community health service units (House Bill 813); and (3) favoring the interstate compact on mental health (House Bill 644), which passed.

The fact that 2 of these proposals were not implemented was not the fault of the medical association but rather can be attributed to the sad story that this area has become embroiled in politics.

I would like to brief you on the happenings regarding the transfer bill: Senate Bill 320 passed the Senate with only 5 dissenting votes. It enjoyed bipartisan support and a very good hearing. When the bill reached the House, the Representatives were engaged in the tax struggle. The fact that this bill needed a two-thirds vote made it even more difficult. The bill was discussed in a Republican caucus, and it was learned that some men objected to it and it would be impossible to get the full support of the Republicans, which was needed. The medical association realized that the status quo could not be maintained. The executive committee of the state legislative committee called a special meeting with the legislators to see if something could be worked out.

There were 6 members present, plus Dr. Larson (president), Dr. Gilsdorf (president-elect), Dr. Marlin Johnson, and Dr. Lund, chairman on the citizens committee which had recommended a transfer. Senate majority leader Holand, House leader Halcrow, Senator Meidinger and Representative Reimers (both from Jamestown), Senator Wartner, and Representatives Haugland and Sangstad, were all present at the meeting. After considering all of the plans and recommendations and being very sincere in trying to accomplish something, the men made the following plan: (1) to enlarge the board of administration to include the state health officer and the attorney general; (2) to give the board a medical council chaired by the mental health authority (Dr. Samuelson) and 2 other physicians who would be appointed by the Governor from a list of names submitted by the medical association.

These doctors would contribute their talent and would advise the board on medical policy. The committee of doctors and legislators agreed wholeheartedly on this plan because they believed this would insure the best possible medical care. The Democrats in the House opposed the plan, and so a two-thirds vote was lost. The opponents of the transfer to the state health department believed that it would eventually result in the political destruction of the state health department because of the patronage involved. Dr. Peters was invited to attend the Republican caucus. He minced no words about politics being taken out of the hospital. He felt that the amendment to the bill was good. As far as Dr. Peters is concerned, both political parties are to blame as neither would compromise.

House Bill 813 dealt with the establishment of community health service clinics. These clinics would receive a percentage of their expenses from the state, but the major portion of the money would be raised in the political subdivision of the clinic. The medical association was in complete accord on this bill, as long as these lines were included, "The medical program of each unit shall be submitted by the mental health division to the mental health committee of the North Dakota State Medical Association." When the bill reached the social welfare committee and these lines were deleted, the medical association could no longer assume responsibility for the program, as it would have no jurisdiction on medical policy.

It seems logical to me that the medical profession could best be able to direct the medical program of the clinics. If laymen were to take over this obligation, the medical association would not realistically be expected to encourage this legislation. However, at no time did the medical association take an active part in defeating the bill.

Dr. Vandergon, in his letter, felt that state-wide conditions have been improved since there are now psychiatrists in the 4 large towns, and people in the general area of these towns are getting quicker care. The state psychiatric clinics in Bismarck and Williston also are helping. The state school at Grafton is doing a fine job and it is also believed that the state hospital at Jamestown should be better now that there is a new superintendent. This again rests with someone not connected with medicine, since a lay board will hire the new superintendent.

We in North Dakota must arrive at a program that would approach adequacy in meeting the needs of the mentally ill. We must develop a plan of action that would satisfy us and show that we are doing the best we can toward their recovery.

IRIS M. SCHOREGGE, Chairman

Report of Health Careers Committee

There seems to be very little activity to report. The state health careers rally was held in Dickinson on Saturday, September 29, 1962, with 4 groups represented. At that time, the charter was adopted, and Bismarck was chosen as the site of the 1964 convention or rally.

In February of 1963, I talked to officials of the 2 schools in Richardton on health careers, and on March 28, 1963, a group of girls from Richardton public schools, with 2 advisors, visited a meeting of the Dickinson Future Nurses club. The Richardton group will form a club before the close of the school year, and the Dickinson officers will help with the installation ceremony.

A tea will be held at St. Joseph's Hospital in May, at which time girls from Dickinson and Mott will be awarded achievement pins; 1 senior girl from each city will receive a $50 scholarship given by their respective clubs from money earned during the year.

Mrs. Robert Hankins, Mott, who has done so much to promote health careers in southwestern North Dakota, was elected vice-chairman of the North Dakota Council on Health Careers.

Mrs. Walter C. Hanewald, Chairman

Report of Community Service Committee

Stimulated by the excellent program and literature presented at the 1962 national auxiliary convention, and guided by a letter from Mrs. Willis, national community service chairman, who asked us to make youth physical fitness and medical quackery our priority projects this year, a suggested program of district projects was worked out. This was done after conferring with Mrs. Clyde Smith, North Dakota auxiliary program chairman, and Dr. Percy Owens, chairman of the state medical association's committee parallel to our community service committee.

Dr. Owens said that our medical association had not yet planned any statewide "youth physical fiitness" program for which auxiliary assistance would be needed; he did suggest that we offer our co-operation, as district groups, for the Sabin Oral Sunday and Cornell Automotive Crash programs and that we distribute to homemakers the literature from the "kit to combat food faddism." Mrs. Smith suggested using the food faddism literature, the "Medicine Man" movie, and an original skit as program material for 1 meeting in each district.

Pursuant to these conferences and stirred by a report from the heart association on the high administrative costs incurred when hired telephone solicitors had to be used to procure block workers for Heart Sunday, the following suggested program was outlined for district presidents at the fall board meeting: (1) devote, if possible, 1 meeting to food faddism quackery, using the "Medicine Man" film from American Medical Association headquarters, the "Emilene McFadd" humorous monologue, and the kit of literature from the American Medical Association; (2) ask all members to carefully avoid buying any books on nutrition not approved by the medical association; (3) recommend the movie, literature, and so forth, to lay groups, talk to librarians and home economists about nutrition books, contact homemaker club presidents and acquaint them with the program; (4) offer the services of the district group for Sabin Oral Sunday, Heart Sunday, and Cornell Automotive Crash program work; (5) consult the district medical society about local needs, and vary or arrange district auxiliary programs accordingly; (6) ask members to continue their usual generous individual service with established community organizations. Copies of this program and the "Emilene McFadd" monologue script were sent, as midyear reminders, to district presidents, in January. A "kit to combat food faddism" was also ordered from American Medical Association headquarters for each district.

To date, reports have been received from 7 districts on this year's accomplishments. They may be summarized thus: (1) all districts reporting had members working as volunteers for Sabin Oral Sunday; in Fourth and Seventh districts, the auxiliaries accepted the tremendous job of setting up the clinic sites, recruiting manpower, and doing the actual registering, tallying, cashiering, and dispensing of vaccine; (2) Seventh District and First District both undertook "senior citizen" projects. Seventh District provided a complete party for senior citizens and First District provided prizes and refreshments for all meetings of an already established club for senior citizens; (3) Seventh District, again as a district project, provided clothing, food, gifts, and toys, at Christmas, for 2 needy families, and Sixth District contributed $10 to the already established Open Your Heart community fund to provide Christmas baskets; (4) in Ninth District, Mrs. Gilliland spent many hours helping St. Joseph's Hospital form an auxiliary; (5) Seventh District members, together with their local dentists' wives, provided a birthday party for 139 patients at the state mental hospital; (6) apropos to combatting food faddism, Sixth District president, Mrs. Lommen, devoted the January district meeting to an informative program for members. At this meeting, the "Medicine Man" film was shown, Mrs. Lyle Limond, a Bismarck-Mandan community theater member, presented the humorous, satirical monologue, "Emilene McFadd," and the literature from the "kit to combat food faddism" was displayed.

Mrs. Lommen took the kits to the state convention of North Dakota Home Economists Association and displayed them at the registration desk, where she was working. Her enthusiastic promotion of the literature procured orders for 560 kits for use by home economists throughout the state. Mrs. S. J. Thakor, Bismarck, advisor to the Bismarck Medical Careers Club, which will host a state paramedical careers rally next fall, took a kit for use by the careers club. Mrs. Fox, Rugby, ordered the "Medicine Man" film for showing to the local hospital auxiliary. The film was also shown to the sisters who teach nurses at Mary College, Bismarck. Mrs. Clyde Smith, Bismarck, presented the monologue and other food faddism facts to lay associates at a study club meeting. Mrs. Amstutz, Minot, also has plans to present the program to a lay group. Mrs. Hankins, Mott, procured for our files a complete list of homemaker club presidents in North Dakota.

The record of work performed by our individual members serving already organized community service groups is tremendously impressive. Mrs. Jestadt, Seventh District president, estimates that one and one-half to two full days per week are given to community service by auxiliary members in her district; that seems to be a conservative estimate for all auxiliary members throughout the state, for our doctors' wives are not only committee members, but about 25 percent of them are leaders (in Minot, 17 members hold community chairmanships or offices; some hold several offices).

Reports available show our members even hold key positions at a state level in Crippled Children's Association, hospital auxiliary, P.T.A., Federated Music Clubs, and American Legion Auxiliary. Many are active in political organizations and some have won elective offices. The "community service" column in *News, Views, and Cues* chronicles the details of individual achievements, but one member's work is so outstanding that it deserves prideful mention here; namely, that of Mrs. H. M. Erenfeld, Minot. She received the Minot Exchange Club's golden deed award this year in recognition of forty-six years of continuous service as city and county Christmas seal chairman. Through her dedicated volunteer effort, nearly $120,000 has been raised through the sale of Christmas seals for the Tuberculosis Association.

Mrs. M. M. Heffron, Chairman

"News, Views, and Cues" Report

All bills are paid to the Devils Lake World Printers.

On November 12, 1962, a total of 425 copies of *News, Views, and Cues* were sent out to all auxiliary members. A bill of $59.57 was submitted to our treasurer and was paid.

On February 2, 1963, a total of 550 copies of *News, Views, and Cues* were sent out to all doctors' wives in the state. A bill of $62.63 was submitted to our treasurer and paid.

On April 16, 1963, our third issue of *News, Views, and Cues* was released. As yet, the bill for these copies has not been received. However, it will be available for the final report at the convention.

Mrs. Jon V. Eylands, Business
and Circulation Manager

Report on Medical Student Loan Fund

The total worth of the Sophomore Student Loan Fund in its twelfth year is $24,077.81. This includes monthly returns ranging from less than $25 to more than $900.

Income to the fund for 1962 totaled $10,968.36. This includes repaid loans, interest, memorials of $475, and $2,176.57 contributed by the auxiliary. It is of interest to note how the memorials added greatly to our project. In the past year, memorial cards were made available to each district upon request.

During the calendar year of 1962, 7 loans for $500 each and 1 for $200 were made. So far in 1963, 6 loans of $500 each have been approved, leaving a balance of $4,168.36 available for current sophomores. The last report on April 18, 1963, shows a balance of $3,746.37.

It seems that there is a preference for loans of $1,500 to $2,000 per individual. Often the student will take a $1,500 loan from another fund and supplement it with $500 from our Student Loan Fund, since there is a ceiling of $500 per individual.

I am proud to report the contributions of various districts for 1963 and want to commend each member and all districts on their fine co-operation.

First District (Fargo) 75 members (dinner dance)	$ 500.00
Second District (Devils Lake) 19 members (assessment)	76.00
Third District (Grand Forks) 55 members (dinner dance)	125.00
Fourth District (Minot) 40 members (assessment)	390.00
Fifth District (Valley City) 5 members	
Sixth District (Bismarck) 56 members (assessment)	580.00
Seventh District (Jamestown) 23 members (assessment)	230.00
Eighth District (Williston) 14 members	100.00
Ninth District (Dickinson) 25 members (assessment)	50.00
Tenth District (Hillsboro) 9 members (assessment)	18.00

The total active membership of 321 gave a total amount of $2,369. This is an increase over the past year and shows an average per member of $7.38. So far, memorial contributions have been $10. The approximate value of the Sophomore Student Loan Fund at this date is $26,416.81.

Mrs. Gale Richardson, Chairman

Resolution

Whereas, the ladies of the Woman's Auxiliary to the North Dakota State Medical Association have, through diligent and continuous effort, raised the sum of $26,446 for the Medical Student Loan Fund of the Medical School of the University of North Dakota, and in the past year have raised the sum of $2,379.00, and further donated $827.00 to the American Medical Education Fund, and

Whereas, these funds have enabled many medical students to complete their medical education,

Now, therefore, be it resolved that the House of Delegates to the North Dakota State Medical Association convey to the Woman's Auxiliary our appreciation and thanks for their excellent work, and

Be it further resolved that a copy of this resolution be directed to Mrs. John Jansonius and her successor.

(Adopted by the House of Delegates,
North Dakota State Medical Association,
second session, May 5, 1963)

Report on WASAMA Program

The student medical wives club will have held a total of 14 meetings with 26 paid members in 1962-63.

Many homes were opened to us for our meetings. Among those who have invited us into their homes are Mmes. T. H. Harwood, R. O. Goehl, T. Q. Benson, John Lambie, and R. Douglas Doss. We sincerely appreciate the interest shown us by these individuals.

Our meetings are held the first and third Tuesdays of each month. Our last meeting will be a banquet held at the Bronze Boot on May 7, at which time our new officers will be installed.

As a fund-raising project, we sold Christmas wrap, cards, and candles. The project was very successful; the candles sold especially well.

The service project committee was busy thinking of worthwhile projects. Our main project is now in existence, that of remembering the 58 bedridden patients at Valley Memorial Home. At our last meeting, we decorated vases in which we placed carnations. These were delivered on the first day of spring, March 21. With each vase we sent a personal note written by individual members. We plan to follow up the flowers with our personal services at the home on Thursdays and Saturdays of each week. We will go in groups of 2 and 3 to write letters, read the newspaper, set hair, and do anything we can to make life more enjoyable for these patients. It is planned that we will continue this as our annual service project. We also volunteered our services during the polio clinics held this past year. A donation was sent to the Santa Claus fund during the yuletide season.

With the help of the medical fraternity (Phi Beta Pi), we compiled a questionnaire which was sent to last year's sophomores. This was to give us an insight into the type of schools to which we may transfer, the degree to which the students at University of North Dakota are prepared in comparison to the juniors from other medical schools, and information on housing, availability of jobs for wives, and so forth. We were very pleased with the response. The information is now on reserve in the University of North Dakota medical library. We plan to keep this file up to date each year.

A gift of flowers was sent to each member who was hospitalized and also to each of our hostesses throughout the year.

Our meetings included many informative programs with speakers from various institutions and businesses. Mrs. Lynn Seal, assisted by Mrs. Moore of Northern States Power, presented a demonstration on Christmas foods and decorations. Mr. Black and Mr. Hanson from Black's Bakery demonstrated cake decorating ideas and techniques.

Mr. Glen Cunningham from Cunningham Interiors spoke on modern trends in decorating and showed slides of model homes. Mr. and Mrs. Jeffrey spoke on the activities of the North Dakota State School for the Blind. Dr. Ralph Mahowald talked to us on "The Economics of Medicine." Mr. Bill from Bill and Don's Beauty Salon discussed hair styles, conditioning, coloring, and so forth. At our last meeting, Dr. Vandergon and Mr. Christianson from Northern States Power discussed "Medical Emergencies." They showed a film on emergency external heart massage and mouth-to-mouth rescue breathing. We plan to have a floral demonstration at our next meeting.

Two social events were planned—the first, which was held in November, was a great success. The last, which will be at the Westward Ho Antler Room on March 30, is now in the planning stage. These 2 gala affairs give our husbands a chance to get away from their books (and they give us a chance to see our husbands).

A tour of the medical school was enjoyed by all. Dr. Cornatzer and Dean Harwood familiarized us with the facilities with which our husbands work.

The following officers for 1963-64 were elected on March 19: president, Mrs. Charles Geisler (Marly); secretary, Mrs. Glenn Thoreson (Rosy); treasurer, Mrs. Dean Hillman (Tam). We plan to send Marly Geisler and Barbara Skjonsby to the regional convention in Madison, Wisconsin, on March 23. We hope to be able to finance 2 delegates to the national convention in Chicago on May 1 to 5.

Shortly after our 1961-62 report was submitted, we had the unexpected pleasure of being able to honor one of our members, Mrs. George Ward (Joy), for having designed the national Woman's Auxiliary to Student American Medical Association emblem, which was selected at the 1962 national convention.

Mrs. T. H. Harwood, Liaison Committee Chairman

State Safety Report

Questionnaires were sent to all 10 organized constituent auxiliaries. Nine districts responded. It was found that 2 districts had sponsored poison control projects, 1 district had sponsored a driver education project, 1 district had sponsored a seat belt project, and several districts sponsored blood bank activities.

In spite of great distances to be covered in the state of North Dakota, the women of the state auxiliary work very hard to bring to their communities as much information as will benefit their areas and situations. It would be difficult to pinpoint the number of projects that are actually taking place because of the hardworking women of our state auxiliary. The safety program is very nearly public service, or should come under the heading of community service, because of the many organizations we all belong to.

Mrs. Daniel N. Mergens, Chairman

Program Report

"Food Fads and Fancies," a part of the national priority program against medical quackery, was emphasized by your state program chairman this year with the invaluable assistance of the state community service chairman, Mrs. M. M. Heffron. Mrs. Heffron wrote a delightful, witty monologue depicting the many food fads which an uninformed public accepts as gospel truth. A copy of this monologue and material on food fads from national headquarters was sent to each auxiliary along with the information that the short movie, "The Medicine Man," is available from our national headquarters. It was hoped that many auxiliaries would use this material for a program.

There seems to be a trend, among the auxiliaries who answered my program inquiry, away from programs on national priority themes and toward purely social or cultural meetings. The programs listed included book reviews, music, talks by various people, and just plain gabfests. If these programs result in a spirit of friendship among auxiliary members with an increase in membership and attendance, they are worthwhile and may well be a part of program planning. In other words, if you have found programs which will bring about a large, enthusiastic, and co-operative auxiliary, you will enhance our "image," which is our ultimate goal. The comment was made that in past years many programs had been given on civil defense, legislation, mental health, and so forth, and that repetition is dull. One auxiliary was busy with community projects and did not concentrate on programs.

However, we must not forget our reason for existing. We are organized for the purpose of assisting the American Medical Association in its priority programs. Because of this, we must not neglect entirely the suggestions of the national auxiliary concerning programs.

I would like to suggest that the first program of each year be directed toward orienting new members to the auxiliary's aims in legisiation, American Medical Association Education and Research Foundation, civil defense, youth fitness, medical quackery, and, of course, our own Sophomore Student Loan Fund. It can be made a pleasant social occasion with a warm welcome to newcomers, emphasizing the importance of each individual to the auxiliary.

Make your meetings pleasant and worthwhile. Don't hesitate to ask your state or national program chairman for help in suggestions for programs, materials, or films.

Mrs. Clyde L. Smith, Chairman

Resolutions Report

Whereas, great courtesy has been extended to the Woman's Auxiliary to the North Dakota State Medical Society, in convention assembled; therefore,

Be it resolved that the Woman's Auxiliary to the North Dakota State Medical Association express its sincere gratitude to the following:

To Mrs. C. R. Dukart and Mrs. Harlen Larsen, who have planned so thoughtfully for the comfort and pleasure of their guests, and to their various committees for the efficient manner in which they carried those plans to fruition;

To the woman's auxiliary to the Ninth District Medical Society as official hostesses;

To the Ninth District Medical Society as official hosts; to the president of the North Dakota State Medical Association, Dr. E. J. Larson, and our advisory council of doctors for their support and counsel throughout the year and the inspiring messages of Drs. Larson and Gilsdorf;

To Lyle Limond and Margaret Freming, who have been untiring in their efforts to aid the auxiliary in carrying out our projects;

To all the officers, committee chairmen, district presidents, and councillors who have put forth every effort during the year to keep us informed, inspired, and "on our toes" for American medicine through the program of the Woman's Auxiliary;

To our staff, who kept us informed through our publication, *News, Views, and Cues;*

To Mrs. E. T. Keller for having the booth for the American Medical Association Education and Research Foundation.

To the vocal group under the direction of Mr. William D. Brown, the vocalists under the direction of Mr. O. T. Belsheim, the male quartet directed by Mr. R. H. Metzger, and Mrs. Richard A. Sutter, our honored guest and speaker;

To the Ray Hotel, managers Mr. Fran Ray, Jr., and Mr. Joseph Regan, and the following motels: West Plains, Queen City, Rancher, Enger's, Dickinson Midwest, Star, Home Terrace, Plains City, Defoe, and Swanson's; to the Liberty National Bank and Mr. J. A. O'Brien for our meeting place; to the Esquire Club and Steak House and Mr. Clifford Beaudoin, manager for the luncheon; to the municipal country club and Mrs. William Spotts, president for our banquet; and to the police department, Mr. Matt Zabel, chief;

To the Dickinson Press, Mr. Samuel Burgess, publisher, and television station KDIX-TV, Mr. Stanley Dick, manager, for the excellent coverage of our auxiliary and convention news;

To Mr. Gordon Paul, art instructor, Central High School, for our program covers;

To Mr. L. B. Price for the loan and installation of the public address system for the country club;

To all those unidentified persons whose thoughtfulness has added to the perfection of detail which has made this convention a memorable occasion, we extend special thanks and appreciation;

And be it further resolved that this resolution be included in the minutes of this meeting, and that a letter of appreciation be written to each of those mentioned herein.

Auxiliary President's Report—First District

This year the 83 members of the First District medical auxiliary met at 4 luncheons. Our attendance was excellent at each meeting. At our first luncheon in October, Mrs. Vincent Murphy of Moorhead, Minnesota, gave a most enjoyable reading of "John Brown's Body." At our second meeting, which was in January, Mrs. Roy Stahl, a native of Latvia, told us about her native land and how she and her family had escaped when the Communists took over. At our third meeting, held in March, our own talented member, Mrs. Neill Goltz, gave a program of piano selections. This was indeed a treat for all. Our last meeting of the year was held on April 29, 1963. It was our pleasure to have state president, Fern Jansonius, as our guest and to hear her short, but inspiring, talk on our individual roles in the community as doctors' wives.

Our benefit ball was held again this year at the end of February, 1963, with Mrs. Marshall Landa and Mrs. John Sessums as co-chairmen. The theme was "A Rhapsody in Blue," and was carried out beautifully with floral centerpieces on the tables and original paintings hung in the Top of the Mart for just this occasion. As a result of this effort, we were able to send a check for $500 to the Student Loan Fund and one for $300 to the American Medical Association Education and Research Foundation this year.

Our community service chairman, Mrs. Lester Shook, had a busy year providing cakes and small prizes for the bimonthly meetings of the senior citizens. Three cakes were needed for each meeting, so each of us had a turn at baking and delivering at least one cake to the YWCA where the meetings are held.

The highlight of the year took place at our last meeting when our 10 past presidents were each presented with a silver bracelet and disk with her name and the dates she held office engraved on the back. Mrs. Mack Traynor went through all the past minutes and composed a clever narrative poem about the history of our auxiliary and the particular events that had taken place during each presidency. The poem came as a complete surprise to the past presidents. With much plotting and scheming on the part of our social chairman, Mrs. C. M. Hunter, we were able to get 9 of them to the meeting without revealing our secret.

As always, all members of the auxiliary are active in many phases of community life, and many helped at the oral polio vaccine clinics this year in addition to all else that they do.

This has indeed been a rewarding year in the auxiliary. My officers have been Mrs. George Ivers, vice-president; Mrs. John Goff, treasurer; Mrs. Douglas Lindsay, secretary; and Mrs. Richard Zauner, councillor. The same officers will serve next year with the exception of the councillor, who will be Mrs. Robert Ulmer.

Mrs. James Houghton, President

Auxiliary President's Report—Second District

The Devils Lake District medical auxiliary held 7 meetings this past year. The meetings are social and are held the same night that the doctors have their meetings. Mrs. J. W. Jansonius, state auxiliary president, was our guest of honor at the February meeting.

A donation of $10 was made to the American Medical Association Education and Research Foundation of which Mrs. Ted Keller, Rugby, is state chairman. We also gave a donation of $76 to the Student Loan Fund.

We have a membership of 19. Many members are active in local community projects including Girl Scouts, Boy Scouts, P.T.A., hospital auxiliary, community chorus, and church groups.

Our district is proud of the terrific job Mrs. James Mahoney, Devils Lake, is doing as editor of *News, Views, and Cues*, with Mrs. Jon Eylands, Rugby, as circulation manager.

Mrs. W. R. Fox, President

Auxiliary President's Report—Third District

The Third District auxiliary held 4 dinner meetings in 1962-63. Fifty-five active members and 1 honorary member make up the membership roster. There were 2 new members, and there were no deceased members in 1962-63. Our meetings were held on the same nights that the district medical society met; purpose was to encourage out-of-town wives to accompany their husbands to Grand Forks.

Four excellent programs were arranged by the program co-chairmen: (1) the doctor's wife hears about the medical school; (2) the doctor's wife hears about the ambassador's wife; (3) the doctor's wife hears about banking; and (4) the doctor's wife hears from the state president.

Our last program was canceled when the stress of business kept Mrs. J. W. Jansonius, state president, from attending our meeting. Third District was happy to have Mrs. Jansonius and her husband as guests in February. Grand Forks United States Air Base Hospital personnel invited the Grand Forks District Medical Society and the doctors' wives to tour the newly opened base hospital, have dinner, and hold their monthly meeting at the air base. There was an excellent turnout, and Mrs. Jansonius came especially for this meeting.

The Student Loan Fund received $425. This amount was raised by the project committee, which sponsored a dinner-dance for the auxiliary members and their husbands.

Four dollars and sixty-six cents was sent to the American Medical Association Education and Research Foundation. This amount was the profit from sale of playing cards and notepaper. Next year this amount will be larger as the 24 boxes of cards we ordered are now paid for, and future sales will be all profit.

There were 11 subscriptions to *Bulletin*.

Our legislative co-chairmen kept us informed on current legislation which pertained to the medical profession.

Community service received many hours of auxiliary members' time. Approximately 722 hours were given by members to working at Sabin Sundays, Heart Sunday, hospital auxiliary work, and Red Cross work. We have members working as Girl Scout leaders, Cub Scout leaders, church organist, and many church jobs.

Having the medical school located in Grand Forks makes us have a deep interest in the Woman's Auxiliary to the Student American Medical Association. Two members are invited to be our guests for dinner and a meeting once during the year. Auxiliary members open their homes to the WASAMA for some of their meetings.

Officers for 1963-64 are president, Mrs. Harold Evans, 1024 Reeves Drive, Grand Forks; vice-president, Mrs. Charles Graham, 923 Almonte, Grand Forks; secretary, Mrs. Keith Vandergon, 2220 Cherry, Grand Forks; treasurer, Mrs. Richard Helm, 1527 Chestnut Place, Grand Forks; councillor, Mrs. Robert Painter, 1121 Belmont Road, Grand Forks.

MRS. RODNEY G. CLARK, President

Auxiliary President's Report—Fourth District

The Northwest District auxiliary held 4 evening meetings in the homes of members, 1 luncheon meeting in the home of the president, and 1 dinner meeting with the Northwest District Medical Society.

Dr. G. M. Christenson, Minot veterinarian, spoke to the group on the "Veterinarian in the Community." Dr. Christenson gave a lively account of the duties a veterinarian performs outside the animal field.

In October, Dr. T. E. Gibson spoke on "Medicine in Saskatchewan." In December, a joint meeting was held with the Northwest District Medical Society.

Mrs. John Jansonius, state auxiliary president, was our honored guest in March. The hostesses were the wives of the Air Force doctors. These ladies add much to our meetings, and we are the richer for their association with us. Mrs. Jansonius gave us much to think about and showed the way to future goals. The April meeting was a luncheon with the 1962-63 officers acting as hostesses.

Northwest District has 40 paid members with a potential of something like 60—a goal for which we are always striving.

We were pleased to help the Northwest District Medical Society with the planning and execution of the Sabin oral vaccine clinics. The auxiliary acted as manpower committee, and we called on the senior, junior, and intermediate Girl Scouts; the Cheer Ladies and Candystripers from Trinity Hospital; the Sodality Girls from St. Joseph Hospital; and various members from the P.T.A. for assistance. Mmes. L. L. Hoopes, Henry Kermott, Gale Richardson, Jens Sahl, and Carl London assisted me as co-chairmen for the 3 clinic sites. Their co-operation was invaluable.

We continue the policy of a $10 assessment for student loans. This is not compulsory. Our total for this year was $390. The contribution for the American Medical Association Education and Research Foundation came to $80.

The luncheon held at the April meeting was for the purpose of making money for a local project. The auxiliary members visited the school for the mentally handicapped during the year and found that it was in need of financial help. The project committee recommended that proceeds from the luncheon, together with $50 from the treasury, be given to the school. This is to be divided with a day camp for the handicapped that is directed by Mrs. Carl London in the summer at the Girl Scout camp.

Northwest District has had a busy and productive year. There is always room for improvement, and we are looking forward to the year ahead with a new slate of officers and their new ideas for accomplishment. This slate of officers is as follows: Mrs. Carl London, president; Mrs. William Hurly, vice-president; Mrs. Fred Veenbaas, secretary; Mrs. A. Malcolm Cameron, treasurer; and Mrs. P. J. Breslich, councillor.

MRS. KENNETH AMSTUTZ, President

Auxiliary President's Report—Sixth District

Prior to our first meeting, letters of invitation were sent to all prospective members and wives of residents. A calling committee telephoned each of these persons before each meeting to encourage attendance and membership and assure a reservation. The secretary dropped a card to those living outside of Bismarck.

During the year, we had 4 dinner meetings. Our meetings are held at the same time as the Sixth District Medical Society, but in different sessions.

Our first meeting was held December 18. New committee chairmen reported on their respective roles and projects. Ten dollars was contributed to the "Open Your Heart" community Christmas fund. Six members volunteered for and assisted with the polio clinic. Mrs. R. F. Nuessle is the new councillor for Sixth District and has done very well in gathering news for *News, Views, and Cues*. Mrs. Giffey and Mrs. Hauf, wives of legislators, were guests. Miss Judith Halvorson presented a delightfully humorous skit, "Children's Christmas Program."

Our state president, Mrs. J. W. Jansonius, was present for our meeting on January 15. We also enjoyed having Mrs. William C. Menninger of Topeka, Kansas; Mrs. E. J. Larson of Jamestown, and Mrs. Lyle Limond of Bismarck, as guests for the meeting. Mrs. J. W. Jansonius brought greetings and expressed enthusiasm, which she does so well, for the medical auxiliary projects for the year. Mrs. M. M. Heffron, community service chairman, wrote a skit, "Emilene McFadd," and Mrs. Lyle Limond presented the monologue. This was cleverly composed, and Mrs. Limond gave a most enjoyable presentation. There were bulletin board displays from the campaign kit "To Combat Food Faddism and False Claims" from Dr. White of the American Medical Association, Department of Foods and Nutrition. The film, "The Medicine Man," was presented. Mrs. Heffron has to-date received 559 requests for these campaign kits.

At the February 7 meeting, the Sixth District auxiliary contributed $50 toward the state paramedical careers rally to be held in Bismarck September 21. There are 200 names now listed for this rally. Mrs. S. J. Thakor of the auxiliary is advisor for the Bismarck medical careers club.

Mrs. B. A. Girard, civil defense chairman, presented the program for the evening. Mr. M. W. Clarke, Morton County Civil Defense Director, and Mr. Don Robinson, Assistant Burleigh County Civil Defense Director, distributed "fallout protection" pamphlets of the Department of Defense, Office of Civil Defense. Mr. Clarke talked about statewide civil defense in event of enemy attack or natural disaster. They presented the film, "The Eagle's Talon."

Officers for the coming year were elected at the April 5 meeting. They are Mrs. J. M. Knudsen, president; Mrs. Ralph J. Dunnigan, vice-president; Mrs. J. P. Saner, secretary; and Mrs. C. H. Peters, treasurer. Delegates to the state convention in Dickinson are Mrs. G. H. Spielman and Mrs. R. O. Saxvik.

Mrs. R. D. Schoregge, mental health chairman, introduced Dr. S. J. Thakor, psychiatrist with the North Dakota Children's Psychiatric Clinic. The film, "Cry for Help," was presented and comment and discussion followed.

Officers for the 1962-63 year were Mrs. M. A. K. Lommen, president; Mrs. T. L. Stangebye, vice-president; Mrs. William Buckingham, secretary; and Mrs. C. H. Peters, treasurer.

There were 8 state board members from the Sixth District: Mrs. R. F. Nuessle, Sixth District councillor; Mrs. C. L. Smith, program; Mrs. G. H. Spielman, historian; Mrs. M. M. Heffron, community service; Mrs. R. M. Berg, finance; Mrs. R. D. Schoregge, mental health; Mrs. J. J. Moses, legislation; and Mrs. M. A. K. Lommen, president of the Sixth District and publicity chairman.

The Sixth District auxiliary has 58 members, 29 *Bulletin* subscriptions, has contributed $47.75 to the American Medical Association Education and Research Foundation, has advanced $600 to the Student Loan Fund, University of North Dakota School of Medicine, assisted the community Christmas fund with $10, and promoted the state paramedical careers rally with $50.

Our sincere sympathy is extended to Dr. Edwin H. Boerth and sons in the passing of Mrs. Boerth (Mary Margaret) on September 11, 1962. Our sympathy is also extended to Dr. Franz Gutowski and family in the passing of Dr. Anna Gutowski on September 15, 1962.

The officers, special committee chairmen, the calling committees for *News, Views, and Cues*, and for arrangements and reservations, worked so well together that, as president, I am truly grateful and wish to thank them for all their efforts.

Mrs. M. A. K. Lommen, President

Auxiliary President's Report—Seventh District

The 24 members of the Seventh District of the Woman's Auxiliary to the North Dakota State Medical Association are very proud of their community service efforts. Our annual Christmas basket project is devoted to 2 needy families. We bring clothing, food, gifts, toys, and Christmas dinner and deliver them in time for a wonderful Christmas. We sponsor a future nurses club; the 16 enthusiastic members meet twice a month with 2 of our auxiliary members for field trips and hospital service.

This is the first year we have sponsored a senior citizens' party. Forty-eight of our Jamestown senior citizens enjoyed a South Sea Island theme, a wonderful lunch, games, and many prizes. We felt this was a very worthwhile and enjoyable project.

The Seventh District, together with local dental wives, has an annual state hospital birthday party, at which we present birthday cake, ice cream, and gifts to 139 patients.

Several of our members worked individually on Heart Sunday, March of Dimes, community fund, or were Sunday school teachers, Brownie, Cub Scout, and Girl Scout leaders, and were active in our hospital auxiliaries.

This year the Stutsman County medical auxiliary assisted the doctors of the county on Sabin Oral Sunday. We helped them set up the project and assisted in carrying out the program.

We donated $230 to the Student Loan Fund, made a lump sum donation of $46 to the American Medical Association Education and Research Foundation, and sold $18 worth of stationery. Our *Bulletin* subscription response has been 100 percent.

New officers for the coming year will be Mrs. John A. Swenson, president; Mrs. Gerald R. Swafford, vice-president; and Mrs. Philip B. Curtis, secretary-treasurer. Councillor will be Mrs. John Van der Linde.

Mrs. John J. Jestadt, President

Auxiliary President's Report—Eighth District

We are a relatively inactive group in Eighth District, so have a short narrative account on which to report.

Annually, $10 of our dues goes to the American Medical Association Education and Research Foundation and $100 to the Student Loan Fund. All our members are busy in community service in their own separate ways. We received a new member, Mrs. Rex Wiederanders, who moved here from Omaha, Nebraska.

Our new slate of district officers for the next two years is as follows: Mrs. Charles Walker, president; Mrs. Allan Johnson, vice-president; Mrs. Donald Skjei, secretary-treasurer; and Mrs. Chester Borrud, councillor. We are hoping to send a delegate to the state convention.

Mrs. Charles Petty, President

Auxiliary President's Report—Ninth District

There are 5 scheduled meetings a year: the second Saturday of June, October, December, February, and April. The June meeting was held in Mott, at which time the new officers took charge and convention plans were initiated. In October, the meeting was held at the home of Mrs. Nachtwey. Betty Larsen and Grace Dukart, general chairmen of the convention, gave reports on their plans. *Bulletin* chairman, Mrs. Ahlness, Bowman, announced an almost 100 percent subscription response to the *Bulletin*. A Christmas dinner dance was held as usual, with predinner festivities at the home of Dr. and Mrs. Foster. The February meeting was pot luck at the home of Mrs. Raasch with our state president, Mrs. Jansonius, present to spur us on. It was decided to send $50 to each the American Medical Association Education and Research Foundation and the Student Loan Fund.

Mrs. Raasch, Mrs. D. Reichert, and Mrs. Guloien presented the new slate of officers who were unanimously elected. They are Mrs. Chris Dukart, president; Mrs. Henry Slominski, vice-president; and Mrs. Amos Gilsdorf, secretary-treasurer.

In April, the president of the future nurses club will give a report on their year's activities, and delegates to the convention will be appointed.

The future nurses' club continues to be the main auxiliary project, with an auxiliary member present at all meetings. A state health careers rally was held in Dickinson in September with 4 clubs represented—Jamestown, Bismarck, Mott, and Dickinson. The auxiliary again sponsored the annual tea for the future nurses and newly capped LPN's. This was held at St. Patrick's Auditorium in May with about 200 people in attendance. At this time, award pins, paid for by the auxiliary, are presented to future nurses. The Mott group also awards a $50 scholarship to a worthy member of their club. This is also in the offing for the Dickinson club, which this year gave a picture to the hospital in honor of the hospital's fiftieth anniversary. Sometime in March, Mrs. Slominski and Mrs. Hanewald will meet with a group in Richardton to try to form a club there. One of our members, Mrs. Robert Gilliland, was instrumental in organizing a hospital guild and is the first president.

State and National dues were sent in for 25 members.

Mrs. Walter C. Hanewald, President

Auxiliary President's Report—Tenth District

Traill-Steele District is a social group of 9 women. We meet approximately 4 times each year at a dinner meeting with our husbands. It is not practical to name committee chairmen since we do not conduct regular business meetings except to elect officers once each year. However, important or controversial business or topics are discussed informally.

Unfortunately, we can do very little to help the state organization in its many worthy projects, although we send checks in the amount of $2 per member to the Student Loan Fund and the American Medical Association Education and Research Foundation. The amount sent this year to the Student Loan Fund was $18 and to the A.M.A.-E.R.F. auxiliary fund, $18.

We commend the officers and chairmen of the state for their successful year and hope that the Tenth District can be of assistance to you during the coming year. Officers are Mrs. Russell Odegard, Hatton, president; Mrs. Hazel Chase, Mayville, vice-president; Mrs. H. A. LaFleur, Mayville, secretary-treasurer. Mrs. R. W. McLean is our councillor and will continue in the second year of her three-year term.

Mrs. Daniel N. Mergens, President

Convention Report

Luncheon was served at the Esquire Steak House, Dickinson, May 6 at 12:30 p.m. with Mrs. Robert Hankins, state president-elect, presiding. The theme was "May Day." Small baskets of spring flowers and May poles in pink, blue, and yellow decorated the tables. White orchid corsages were presented to the honored guests at the head table.

Mrs. Robert F. Gilliland presented Mr. W. Brown from the music division of Dickinson State College. He, in turn, presented several of his students, who performed for the group.

Mrs. Hankins welcomed all present and introduced Mrs. Donald Reichert and Mrs. Richard Raasch, chairmen of the luncheon. In turn, she introduced the guests at the head table. Mrs. Richard A. Sutter of St. Louis, our honored guest and regional vice-president, and Mmes. John W. Jansonius, Clyde Smith, Walter Hanewald, R. L. McFadden, Amos R. Gilsdorf, Roger Berg, and John J. Jestadt.

Speaker was Dr. Amos R. Gilsdorf, president-elect of the North Dakota State Medical Association. He welcomed us to Dickinson. He told us how fortunate we were to have Mrs. Sutter as our guest because of her extensive experience in the field of mental health. Dr. Gilsdorf again reminded us that our husbands need and appreciate all the help we can give them, that our personal touch tends to develop an increased faith of the public in the medical family.

He made the suggestion that the auxiliary consider creating its own public relations committee; also, he hoped we would continue our work of raising money for the American Medical Association Education and Research Foundation. He pointed out that the tuition students pay in medical schools accounts for only a small percentage of the total cost of putting a medical student through his university training. Actually, the great majority of practicing physicians, he continued, have received quite a bit of their education at public expense. Dr. Gilsdorf said he believes it is a fine, dignifying gesture for the auxiliary to replace some of this money in later years. Giving to the American Medical Association Education and Research Foundation strengthens the program of free enterprise and helps to prevent government interference.

The second business session reconvened at 2:30 p.m. in the Hospitality Room, Liberty National Bank, with Mrs. Jansonius, state president, presiding. Sister Margaret, head of the School of Practical Nursing, showed the film, "The Return of Horsehide Hooper."

Mrs. Longmire, chairman of the nominating committee, presented the following slate of officers for 1963-64: President, Mrs. R. Hankins; president-elect, Mrs. Clyde Smith; first vice-president, Mrs. Lee Christoferson; second vice-president, Mrs. M. M. Heffron; recording secretary, Mrs. M. A. K. Lommen; and treasurer, Mrs. Roger Berg.

There were no further nominations, and Mrs. Richardson moved that the secretary be instructed to cast a unanimous ballot for the slate of officers. Mrs. Keller seconded the motion and it was passed unanimously.

Delegate to the national convention in Atlantic City in June is Mrs. Robert Hankins, president-elect. The other official delegate was not named as no one from the convention body planned to attend.

The registration committee reported 70-plus attendance. Resolutions were adopted by the House of Delegates.

The courtesy resolutions were presented by Mrs. R. E. Leigh. The motion was made, seconded, and passed unanimously that they be accepted.

Mrs. Longmire announced that Mrs. L. Stoltz would be installed as president of the national auxiliary at the American Medical Association convention in June. The motion was made, seconded, and passed unanimously that a telegram of congratulations be sent. Mrs. Jansonius presented her officers with boxes of American Medical Association Education and Research Foundation stationery. Meeting adjourned until banquet time.

The closing banquet was held at the Dickinson Country Club and was a chuck wagon supper. Our hostesses greeted us in western garb. The theme was carried out in the table decorations with red and white checked tablecloths, oil lamps, and miniature coal scuttles filled with candy and nuts. During the social hour, we were entertained by the "Unclassified Four," a fine barbershop quartet.

The welcome was given by Mrs. W. Hanewald. We were entertained during dinner with musical selections by Mrs. O. D. Belsheim, accompanied by Mrs. R. F. Gilliland.

The address of the evening was given by Mrs. Richard A. Sutter, regional vice-president of the auxiliary to the American Medical Association. She brought greetings from the national auxiliary and from her home state of Missouri and her city of St. Louis.

In choosing a text, Mrs. Sutter said she would quote the bard of Avon who said in *As You Like It*, "Sweet are the uses of adversity."

"Auxiliaries all over the country have played an important part in advancing the cause of American Medicine since 1922," she said. However, at many stages in our history, "cultivating friendly relations" has seemed an easier and more clear-cut objective than participation in programs that sometimes did not seem to have a direct bearing on our own county auxiliary. Mrs. Sutter pointed out that a social organization "we will always be," but it has been the opponents of organized medicine, the proponents of control of medical care, who have provided us with a real sense of "raison d'etre," a real demand to assist the American Medical Association in its program for the advancement of medicine and public health. She said that at this time of year, when our national congress is in session, the American Medical Association finds itself again in both offensive and defensive positions relative to legislation. "Unfortunately, it is in the defensive area that the public hears about organized medicine, as relatively little publicity is given to the American Medical Association's never ending crusade to improve the quality and quantity of medical care," she said.

Mrs. Sutter mentioned that advocates of compulsory health insurance have been around since the thirties, but some fifteen years ago the then President Harry Truman publicly advocated a complete system of government regulated, and hence controlled, medicine. In these last fifteen years, she said, we have seen the phenomenal developments of private insurance plans for both hospital and medical care, including Blue Cross and Blue Shield, in which the doctors have played a major part. She added that it is difficult to find an area in which there is greater public misunderstanding than in medicine and medical care. The state auxiliary president and state legislative chairman have both received excellent material from the American Medical Association under the heading, "Operation Hometown." This is medicine's challenge to the latest version of the King-Anderson bill. Mrs. Sutter reminded us that if problems are not solved on a community or state level, not only will the federal government step in, but it will in fact be asked to come in. Also, she reminded us that the programs of the American Medical Association auxiliary are actually a catalogue of suggested activities and projects to be used by each auxiliary as it views its own local and state needs. She said that only the medical auxiliary provides a common meeting ground for all women whose husbands are physicians. Only here can we meet with the common bond of not only mutual problems but mutual understanding.

Mrs. Sutter then installed the new officers: Mrs. R. Hankins, president; Mrs. C. Smith, president-elect; Mrs. L. Christoferson, first vice-president; Mrs. M. M. Heffron, second vice-president; Mrs. M. A. K. Lommen, recording secretary; and Mrs. Roger Berg, treasurer. The president's pin and gavel were presented to Mrs. Hankins by Mrs. Jansonius. Mrs. Keller presented Mrs. Jansonius with her past president pin. Mrs. Harlan Larsen presented Mrs. Sutter with a gift as a token of appreciation and a reminder of the trip to North Dakota. A standing vote of thanks was given Mrs. Jansonius for her outstanding work as our auxiliary state president.

Katherine M. McFadden, Recording Secretary

Postconvention Board Meeting

Mrs. R. Hankins called a postconvention board meeting to order immediately following the afternoon convention adjournment. She announced the list of new appointments. The following were elected to the nominating committee: Mrs. Jansonius, chairman; Mrs. Rodgers, alternate Mrs. Keller; Mrs. Wold, alternate Mrs. Petty; Mrs. Clarke, alternate Mrs. Richardson; Mrs. Schoregge, alternate Mrs. Jestadt.

Mrs. Smith suggested that at the fall board meeting a small insurance policy be purchased to cover the loss of the president's pin.

Motion was made for adjournment.

Katherine M. McFadden, Recording Secretary

1963-1964 Officers and Committee Chairmen

STATE OFFICERS

President—Mrs. Robert E. Hankins, Mott

President-elect—Mrs. Clyde L. Smith, 622 Raymond Ave., Bismarck

First vice-president—Mrs. Lee A. Christoferson, 1307 S. 6th St., Fargo

Second vice-president—Mrs. M. M. Heffron, 2033 N. 4th St., Bismarck

Recording secretary—Mrs. M. A. K. Lommen, 831 Griffin St., Bismarck

Corresponding secretary—Mrs. D. Hlavinka, Mott

Treasurer—Mrs. Roger M. Berg, 219 Avenue B West, Bismarck

COMMITTEE CHAIRMEN

Membership—Mrs. Clyde L. Smith, 622 Raymond Ave., Bismarck

Program—Mrs. Lee A. Christoferson, 1307 S. 6th St., Fargo

Nominating—Mrs. J. W. Jansonius, 609 4th Ave. S.W., Jamestown

Parliamentarian—Mrs. R. D. Schoregge, 621 Avenue E West, Bismarck

Aging—Mrs. E. G. Vinje, Hazen

Liaison to SAMA—Mrs. T. H. Harwood, 2704 Belmont Road, Grand Forks

Bulletin—Mrs. George H. Holt, 214 2nd Ave. S.W., Jamestown

Historian—Mrs. D. J. Halliday, Box 217, Kenmare

A.M.A.-E.R.F.—Mrs. D. G. McIntyre, 126 W. 11th St., Rugby

Health careers—Mrs. Sushen Thakor, 907 Griffin St., Bismarck

By-laws—Mrs. James F. Houghton, 1707 S. 9th St., Fargo

Community service—Mrs. Paul Ahlness, Box 85, Bowman

Public relations and publicity—Mrs. Walter C. Hanewald, R.R. 1, Box 18, Dickinson

Rural health—Mrs. J. Terlecki, Minnewaukan

Mental health—Mrs. Robert DeLano, Northwood

Legislation—Mrs. R. F. Raasch, 30 W. 8th St., Dickinson

Civil defense—Mrs. Richard J. Zauner, 1414 S. 6th St., Fargo

International health activities—Mrs. Calvin K. Fercho, 1747 S. 7th St., Fargo

Safety—Mrs. Alan K. Johnson, 1004 W. 12th St., Williston

Official publication—*News, Views, and Cues*
  Managing editor—Mrs. James H. Mahoney, 601 8th St., Devils Lake
  District news editor—Mrs. Jens Sahl, 310 9th St. N.W., Minot
  Business and circulation—Mrs. Jon V. Eylands, 710 W. 3rd St., Rugby

SPECIAL COMMITTEES

Reading—Mrs. E. O. Hieb, 211 14th Ave. Drive, N.E., and Mrs. L. J. Jestadt, 119 15th St. N.E., Jamestown

Resolutions—Chairman to be appointed later by the Minot convention committee

Nominations—Mrs. J. W. Jansonius, 609 4th Ave. S.W., Jamestown, chairman; Mrs. R. W. Rodgers, 146 W. 6th St., Dickinson; Mrs. L. E. Wold, 1708 S. 9th St., Fargo; Mrs. R. G. Clark, 511 S. 18th Ave., Grand Forks; and Mrs. R. D. Schoregge, 621 Avenue E. West, Bismarck. Alternates: Mrs. R. Keller, 816 2nd Ave. S.W., Rugby; Mrs. C. R. Petty, 209 E. 14th St., Williston; Mrs. Gale Richardson, 12 10th St. S.W., Minot; and Mrs. J. J. Jestadt, 419 15th St. N.E., Jamestown

Finance—Mrs. Henry Kermott, 200 7th Ave. S.W., Minot, chairman; Mrs. C. K. Fercho, 1747 S. 7th St., Fargo; Mrs. Walter C. Hanewald, R.R. 1, Box 18, Dickinson; Mrs. Joseph D. Craven, 915 W. 2nd Ave., Williston; and Mrs. Roger M. Berg, 219 Avenue B West, Bismarck

Student loan—Mrs. R. D. Nierling, 415 9th St. S.E., Jamestown; Mrs. Lee A. Christoferson, 1307 S. 6th St., Fargo; Mrs. R. O. Goehl, 1015 Reeves Drive, Grand Forks; Mrs. M. H. Poindexter, 1350 S. 9th St., Fargo; and Mrs. James J. Moses, 1111 W. Highland Acres Road, Bismarck

Delegate to national convention, Atlantic City, June 1963—Mrs. George H. Holt, 214 2nd Ave. S.W., Jamestown; alternate—Mrs. Harold W. Evans, 1024 Reeves Drive, Grand Forks; presidential delegate: Mrs. R. E. Hankins, Mott

District Presidents—1963-1964

First District—Mrs. James F. Houghton, 1707 S. 9th St., Fargo
Second District—Mrs. Stewart Cook, Rolette
Third District—Mrs. Harold Evans, 1024 Reeves Drive, Grand Forks
Fourth District—Mrs. Carl London, 506 S. Main St., Minot
Fifth District—Members-at-large
Sixth District—Mrs. J. M. Knudsen, 1729 Cathryn Drive, Bismarck
Seventh District—Mrs. John Swenson, 240 12th Ave. N.E., Jamestown
Eighth District—Mrs. H. C. Walker, 718 E. 1st Ave., Williston
Ninth District—Mrs. Christ Dukart, 208 W. 4th Ave., Dickinson
Tenth District—Mrs. Russel Odegard, Hatton

District Councillors—1963-1964

First District—Mrs. Robert Ulmer, 714 S. 19th Ave., Fargo
Second District—Mrs. Connor Corbett, 316 7th St., Devils Lake
Third District—Mrs. Robert Painter, 1121 Belmont Road, Grand Forks
Fourth District—Mrs. Paul Breslich, 818 4th St. S.E., Minot
Fifth District—Members-at-large
Sixth District—Mrs. R. F. Nuessele, 815 Griffin, Bismarck
Seventh District—Mrs. John Van der Linde, 1016 4th Ave. N.E., Jamestown
Eighth District—Mrs. Chester Borrud, 729 W. 16th St., Williston
Ninth District—Mrs. Richard Raasch, 30 W. 8th St., Box 990, Dickinson
Tenth District—Mrs. Robert McLean, Hillsboro

WOMAN'S AUXILIARY TO THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

1963 MEMBERSHIP ROSTER

First District

Amidon, Mrs. B. F.	1701 9th St. S., Fargo
Bacheller, Mrs. Stephen C.	Enderlin
Barnard, Mrs. Donald M.	1212 S. 7th St., Fargo
Beithon, Mrs. Bruce	520 8th St., Wahpeton
Beithon, Mrs. E. J.	429 N. 5th St., Wahpeton
Bond, Mrs. John H.	516 13th St., Fargo
Borland, Mrs. V. G.	1514 S. 9th St., Fargo
Burton, Mrs. P. H.	415 S. 8th St., Fargo
Christoferson, Mrs. Lee A.	1307 S. 6th St., Fargo
Christu, Mrs. Chris N.	1509 S. 5th St., Fargo
Corbus, Mrs. Budd Clarke	1257 N. 4th St., Fargo
Darner, Mrs. C. B.	1121 N. 5th St., Fargo
Darrow, Mrs. Kent E.	716 S. 8th St., Fargo
DeCesare, Mrs. F. A.	1401 S. 9th St., Fargo
Dodds, Mrs. G. A.	1602 S. 10th St., Fargo
Ehlen, Mrs. Matt	94 N. 22nd St., Fargo
Engstrom, Mrs. Perry	807 N. 2nd St., Wahpeton
Fercho, Mrs. Calvin K.	1747 S. 7th St., Fargo
Fjelde, Mrs. J. H.	1526 S. 8th St., Fargo
Fortin, Mrs. H. J.	1440 S. 8th St., Fargo
Geib, Mrs. Marvin J.	1219 S. 4th Ave., Moorhead, Minn.
Geston, Mrs. Robert	West Fargo
Gillam, Mrs. John S.	1433 S. 7th St., Fargo
Goff, Mrs. John R.	1441 S. 8th St., Fargo
Goltz, Mrs. Neill F.	804 S. 8th St., Fargo
Gustafson, Mrs. Maynard B.	1410 S. 5th St., Fargo
Hager, Mrs. Jerome P.	P. O. Box 70, Hankinson
Hall, Mrs. G. Howard	1748 S. 8th St., Fargo
Hamilton, Mrs. T. M.	River Oaks, Moorhead, Minn.
Hanna, Mrs. J. F.	907 S. 12th Ave., Fargo
Hawn, Mrs. Hugh W.	1325 N. 1st St., Fargo
Heilman, Mrs. Charles O.	49 N. 18th Ave., Fargo
Houghton, Mrs. James F.	1707 S. 9th St., Fargo
Hunter, Mrs. C. M.	1434 S. 6th St., Fargo
Ivers, Mrs. George U.	1106 S. 10th St., Fargo
Ivers, Mrs. R. R.	809 S. 8th St., Fargo
Jaehning, Mrs. David G.	823 N. 3rd St., Wahpeton
Kavanaugh, Mrs. G. J.	1201 S. 6th St., Fargo
Kelly, Mrs. William	313 Black Bldg., Fargo
Kohlmeyer, Mrs. Albert	1720 S. 3rd St., Moorhead, Minn.
Lancaster, Mrs. W. E. G.	1332 N. 5th St., Fargo
Landa, Mrs. Marshall	1720 S. 8th St., Fargo
Larson, Mrs. G. Arthur	1538 S. 9th St., Fargo
Lawrence, Mrs. Donald H.	720 N. 7th St., Fargo
LeBein, Mrs. W. E.	1353 N. 5th St., Fargo
LeMar, Mrs. John D.	1324 N. 5th St., Fargo
Lewis, Mrs. T. H.	1502 S. 6th St., Fargo
Lindsay, Mrs. Douglas T.	1505 S. 11th St., Fargo
Long, Mrs. W. H.	1438 S. 8th St., Fargo
Lytle, Mrs. F. T.	1306 N. 1st St., Fargo
Macaulay, Mrs. Warren L.	1306 N. 1st St., Fargo
Magill, Mrs. Gordon B.	1312 S. 7th St., Fargo
Magness, Mrs. John W.	1711 S. 6th St., Fargo
Mazur, Mrs. Bernard	1237 N. 3rd St., Fargo
Melton, Mrs. Frank M.	1702 S. 7th St., Fargo
Murray, Mrs. James B.	1206 S. 15½ Ave., Fargo
Norum, Mrs. H. A.	801 South Drive, Fargo
Owens, Mrs. W. F.	1845 18th St., Fargo
Poindexter, Mrs. Marlin H.	1350 S. 9th St., Fargo
Pray, Mrs. Lawrence G.	1701 S. 8th St., Fargo
Rogers, Mrs. R. G.	1621 S. 7th St., Fargo
Sedlak, Mrs. O. A.	1019 S. 9th St., Fargo
Seifert, Mrs. R. H.	909 S. 19th St., Fargo

Sessums, Mrs. John V., Jr. 1330 S. 18th Ave., Fargo
Shook, Mrs. Lester D. 1326 S. 8th St., Fargo
Story, Mrs. Robert D. 1312 S. 9th St., Fargo
Traynor, Mrs. Mack V. 1310 S. 9th St., Fargo
Triggs, Mrs. Perry O. 1402 S. 9th St., Fargo
Ulmer, Mrs. Robert 714 S. 19th Ave., Fargo
Webster, Mrs. William 801 Park Drive, Fargo
Wenz, Mrs. E. P. 1702 S. 13th St., Fargo
Weyers, Mrs. H. J. R.R. 1, Moorhead, Minn.
Williams, Mrs. Neil S. 1707 S. 9th St., Fargo
Wold, Mrs. L. E. 1708 S. 9th St., Fargo
Zauner, Mrs. Richard J. 1414 S. 6th St., Fargo

Second District

Cook, Mrs. Stuart J. Rolette
Corbett, Mrs. Connor A. 316 7th St., Devils Lake
Eylands, Mrs. Jon V. 710 W. 3rd St., Rugby
Fawcett, Mrs. John C. 1125 5th St., Devils Lake
Fawcett, Mrs. Robert M. 12th Ave., Devils Lake
Fox, Mrs. William R. 320 E. 9th St., Rugby
Hilts, Mrs. George H. Cando
Johnson, Mrs. Christian G. 819 W. 3rd Ave., Rugby
Keller, Mrs. Emil T. 816 2nd Ave. S.W., Rugby
Lazareck, Mrs. I. L. 1032 5th St., Devils Lake
Longmire, Mrs. L. T. 810 6th St., Devils Lake
Mahoney, Mrs. James H. 601 8th St., Devils Lake
McBane, Mrs. Robert D. 1106 4th St., Devils Lake
McIntyre, Mrs. Donald G. 126 W. 11th St., Rugby
Neuenschwander, Mrs. Roger Rolla
Palmer, Mrs. Dolson Cando
Pine, Mrs. Louis F. 817 7th St., Devils Lake
Sawchuk, Mrs. John Rolette
Toomey, Mrs. Glenn W. Devils Lake

Third District

Benson, Mrs. T. Q. 1524 Walnut, Grand Forks
Campbell, Mrs. Duncan W. 1007 Chestnut St., Grand Forks
Clark, Mrs. Rodney G. 511 S. 18th Ave., Grand Forks
Clayburgh, Mrs. B. J. 729 Reeves Drive, Grand Forks
Culmer, Mrs. A. E., Jr. 101 Reeves Court, Grand Forks
Dailey, Mrs. W. C. 1812 Belmont Rd., Grand Forks
DeLano, Mrs. Robert Northwood
Doss, Mrs. R. D. 9 E. Conklin Ave., Grand Forks
Evans, Mrs. H. W. 1024 Reeves Drive, Grand Forks
Fritzell, Mrs. K. E. 1120 Cottonwood, Grand Forks
Gertson, Mrs. George D. 511 S. 5th St., Grand Forks
Goehl, Mrs. R. O. 1015 Reeves Drive, Grand Forks
Graham, Mrs. Charles M. 923 Almonte Ave., Grand Forks
Graham, Mrs. J. H. 1125 Reeves Drive, Grand Forks
Grinnell, Mrs. E. L. 1207 Lincoln Drive, Grand Forks
Hamre, Mrs. C. J. 811 Letnes Drive, Grand Forks
Harwood, Mrs. T. H. 2704 Belmont Rd., Grand Forks
Haugen, Mrs. C. O. Box 136, Larimore
Haunz, Mrs. Edgar A. 1029 Lincoln Dr., Grand Forks
Helenbolt, Mrs. K. S. 2216 S. 10th St., Grand Forks
Helgason, Mrs. Norman M. Cavalier
Helm, Mrs. R. K. 1527 Chestnut Place, Grand Forks
Jensen, Mrs. A. F. 1721 Belmont Rd., Grand Forks
Kaluzniak, Mrs. N. J. Langdon
Keig, Mrs. William P. 501 S. 17th Ave., Grand Forks
Lambie, Mrs. John A. 2721 Chestnut, Grand Forks
Leigh, Mrs. James A. 606 N. 3rd, Grand Forks
Leigh, Mrs. Ralph E. 301 Park Ave., Grand Forks
Levine, Mrs. Leonard 1006 Cottonwood, Grand Forks
Liebeler, Mrs. Frances P. 1428½ S. 14th St., Grand Forks
Lorentson, Mrs. Carl E. 1301 Chestnut St., Grand Forks
Mahowald, Mrs. Ralph E. 606 S. 5th St., Grand Forks
Marshall, Mrs. R. A. 924 Reeves Drive, Grand Forks
McLeod, Mrs. J. J., Jr. 217 S. 27th Ave., Grand Forks
Meredith, Mrs. William Drayton
Nelson, Mrs. Wallace W. 511 S. 17th Ave., Grand Forks
Nelson, Mrs. William C. 1118 Reeves Drive, Grand Forks
Olson, Mrs. James R. 1506 Chestnut St., Grand Forks
Painter, Mrs. R. C. 1121 Belmont Rd., Grand Forks
Penners, Mrs. J. H. 1923 University Ave., Grand Forks
Pettit, Mrs. Samuel L. 625 Reeves Drive, Grand Forks
Porter, Mrs. Charles B. 1210 Chestnut St., Grand Forks
Potter, Mrs. W. F. 2024 N. 2nd Ave., Grand Forks
Powers, Mrs. William T. 1509 Walnut, Grand Forks
Prochaska, Mrs. L. J. 620 Reeves Drive, Grand Forks
Ruud, Mrs. John E. 2221 Chestnut, Grand Forks
Sandmeyer, Mrs. John A. 1005 Lanark, Grand Forks
Schafer, Mrs. T. L. 1523 Cottonwood St., Grand Forks
Silverman, Mrs. L. B. 626 Belmont Road, Grand Forks
Stratte, Mrs. J. J. 109 S. 4th Ave., Grand Forks
Tarpley, Mrs. Harold E. 511 Reeves Drive, Grand Forks
Thorgrimsen, Mrs. G. G. 1615 N. 4th Ave., Grand Forks
Tompkins, Mrs. C. 641 Kitson Ave., Grafton
Vandergon, Mrs. K. G. 2220 Cherry St., Grand Forks
Wilson, Mrs. George 510 S. 18th Ave., Grand Forks
Witherstine, Mrs. W. H. 214 S. 8th Ave., Grand Forks
Woutat, Mrs. P. H. 1205 Lincoln Drive, Grand Forks
Youngs, Mrs. Nelson A. 500 River St., Grand Forks

Fourth District

Amstutz, Mrs. Kenneth N. 505 9th Ave. S.E., Minot
Boyum, Mrs. Lowell E. Harvey
Breslich, Mrs. Paul J. 818 4th St. S.E., Minot
Briggs, Mrs. Brian E. 148 25th St. S.W., Minot
Cameron, Mrs. Angus L. 318 8th Ave. S.E., Minot
Cameron, Mrs. A. Malcolm 412 25th St. N.W., Minot
Dormont, Mrs. Richard E. 202 9th St. S.E., Minot
Fischer, Mrs. V. J. 303 8th Ave. S.E., Minot
Gammell, Mrs. Robert T. Kenmare
Garrison, Mrs. M. W. 612 Mount Curve Ave., Minot
Giltner, Mrs. Lloyd A. 9 Courtland Drive, Minot
Goodman, Mrs. Robert Powers Lake
Gozum, Mrs. Ekrem 1715 4th St. S.W., Minot
Halliday, Mrs. D. J. Box 217, Kenmare
Hart, Mrs. George M. 213 7th Ave. S.E., Minot
Heidorn, Mrs. G. H. 1127 Valley View Drive, Minot
Hoopes, Mrs. L. L. 118 9th Ave. S.E., Minot
Hordinsky, Bohdan Z. Drake
Huntley, Mrs. W. B. 208 7th Ave. S.E., Minot
Hurley, Mrs. William 6 9th St. S.E., Minot
Kermott, Mrs. L. H. 200 7th Ave. S.W., Minot
Kihle, Mrs. Kenneth W. Bottineau
Kohl, Mrs. Darwin L. 2200 4th Ave. N.W., Minot
Lampert, Mrs. Max T. 101 10th St. N.W., Minot
Larson, Mrs. R. S. 500 W. 2nd, Velva
London, Mrs. Carl B. 506 S. Main St., Minot
McCannel, Mrs. A. D. 115 8th St. S.E., Minot
McCullough, Mrs. W. F. 219 W. 13th St., Bottineau
Olson, Mrs. Burton G. 629 3rd St. S.E., Minot
Peterson, Mrs. Myron D. 110 28th St. S.W., Minot

Richardson, Mrs. Gale 12 10th St. S.W., Minot
Rioux, Mrs. Berchmans 912 12th St. N.W., Minot
Sahl, Mrs. Jens 310 9th St. N.W., Minot
Shea, Mrs. Samuel 808 1st St. S.E., Minot
Sorenson, Mrs. Alfred R. 114 6th St. S.E., Minot
Sorenson, Mrs. Roger 101 9th St. S.E., Minot
Uthus, Mrs. Oliver S. 916 W. Central, Minot
Veenbaas, Mrs. Fred A. 226 Souris Drive, Minot
Wall, Mrs. Willard W. 919 3rd St. S.E., Minot
Wilson, Mrs. Herbert J. New Town

Fifth District

(No members)

Sixth District

Amos, Mrs. James R. 103 Cherokee, Bismarck
Arneson, Mrs. Charles A. 714 2nd St., Bismarck
Berg, Mrs. H. Milton 214 W. Ave. A., Bismarck
Berg, Mrs. Roger M. 219 W. Ave. B., Bismarck
Bertheau, Mrs. Herman J. Linton
Brink, Mrs. Norvel O. 212 W. Ave. F., Bismarck
Buckingham, Mrs. T. W. 1203 E. Highland Acres Rd., Bismarck
Buckingham, Mrs. William 901 Parkview, Bismarck
Cartwright, Mrs. J. T. 1110 S. Highland Acres Rd., Bismarck
Cleary, Mrs. Joseph W. 104 Seminole Ave., Bismarck
Dahl, Mrs. Phillip O. 1127 W. Highland Acres Rd., Bismarck
Daniolos, Mrs. Demetrius 1200 Mandan St., Bismarck
Dunnigan, Mrs. Ralph J. 915 W. Ave. B., Bismarck
Eriksen, Mrs. Johan A. 815 W. Ave. C., Bismarck
Ewert, Mrs. Arthur C. Beulah
Fortman, Mrs. Albert H. 1206 4th St., Bismarck
Freise, Mrs. Paul W. 831 Mandan St., Bismarck
Gaebe, Mrs. Otto C. 1215 North Mandan St., Bismarck
Girard, Mrs. B. A. 211 6th Ave. N.W., Mandan
Goughnour, Mrs. Myron W. 103 W. Ave. B., Bismarck
Gray, Mrs. Howard R. 1412 N. 17th St., Bismarck
Gregware, Mrs. P. R. 1239 E. Highland Acres Rd., Bismarck
Hamilton, Mrs. C. A. 1213 N. Washington St., Bismarck
Heffron, Mrs. M. M. 2033 N. 4th St., Bismarck
Henderson, Mrs. Robert W. 1028 4th St., Bismarck
Hetzler, Mrs. Arnold E. 602 6th Ave. N.W., Mandan
Johnson, Mrs. Kenneth J. 216 Tower Ave., Bismarck
Johnson, Mrs. M. J. 1020 N. Washington St., Bismarck
Kalnins, Mrs. Arnold Washburn
Kling, Mrs. Robert R. 1414 Hanaford Ave., Bismarck
Klosterman, Mrs. Paul F. 1803 N. 7th St., Bismarck
Knudsen, Mrs. J. M. 1729 Catherine Drive, Bismarck
Kuplis, Mrs. Haralds Turtle Lake
Larson, Mrs. Leonard W. 1227 N. 1st St., Bismarck
Lommen, Mrs. M. A. K. 831 Griffin St., Bismarck
Moses, Mrs. James J. 1111 W. Highland Acres Rd., Bismarck
Nuessle, Mrs. Robert F. 815 Griffin St., Bismarck
Nugent, Mrs. Milton E. 302 W. Boulevard Ave., Bismarck
Olson, Mrs. Robert J. 717 4th St., Bismarck
Orchard, Mrs. Welland J., Jr. Linton
Owens, Mrs. Percy L. 827 Griffin St., Bismarck
Peters, Mrs. Clifford H. 805 Griffin St., Bismarck
Pierson, Mrs. R. Warren 1209 Mandan St., Bismarck
Pitcher, Mrs. Wayne H. 118 E. Divide Ave., Bismarck
Samuelson, Mrs. A. F. 107 W. Central Ave., Bismarck
Sauer, Mrs. John P. 202 E. Divide Ave., Bismarck
Saxvik, Mrs. R. O. 1243 W. Highland Acres Rd., Bismarck
Schoregge, Mrs. Charles W. 507 6th St., Bismarck
Schoregge, Mrs. Robert D. 621 W. Ave. W., Bismarck
Smeenk, Mrs. H. Pieter 920 Arthur Dr., Bismarck
Smith, Mrs. Clyde L. 622 Raymond Ave., Bismarck
Spielman, Mrs. George H. 1715 E. Ave. E., Bismarck
Stangebye, Mrs. T. L. 1205 Prairie Drive, Bismarck
Thakor, Mrs. Sushen 907 Griffin St., Bismarck
Tudor, Mrs. Robert B. 714 W. Ave. C., Bismarck
Vonnegut, Mrs. Felix J. Linton
Waldschmidt, Mrs. William D. 1241 S. Highland Acres Rd., Bismarck
Zukowsky, Mrs. Anthony Steele

Seventh District

Beall, Mrs. John A. 419 4th Ave. S.E., Jamestown
DuMais, Mrs. Alcid F. 404 2nd Ave. S.E., Jamestown
Elsworth, Mrs. J. N. 215 14th Ave. Drive N.E., Jamestown
Hieb, Mrs. Edwin O. Jamestown
Hogan, Mrs. Clifford W. 303 10th Ave. N.E., Jamestown
Holt, Mrs. George H. 214 2nd Ave. S.W., Jamestown
Jansonius, Mrs. John W. 609 4th Ave. S.E., Jamestown
Jestadt, Mrs. John J. 419 15th St. N.W., Jamestown
Larson, Mrs. Ernest J. 321 2nd Ave. S.E., Jamestown
Lucy, Mrs. Robert 420 4th Ave. S.W., Jamestown
McFadden, Mrs. Robert L. 910 3rd Ave. N.W., Jamestown
Miles, Mrs. James V. 722 6th Ave. S.E., Jamestown
Nierling, Mrs. Richard 415 9th St. S.E., Jamestown
Nolan, Mrs. Robert B. 1706 5th Ave. N.E., Jamestown
Oster, Mrs. Ellis Ellendale
Pederson, Mrs. T. E. 416 4th Ave. N.E., Jamestown
Schmidhofer, Mrs. Ernst State Hospital, Jamestown
Schmidt, Mrs. Donald J. 205 W. 1st Ave., Gackle
Sorkness, Mrs. Joseph 318 3rd Ave. S.E., Jamestown
Swenson, Mrs. John A. 240 12th Ave. N.E., Jamestown
Van der Linde, Mrs. John M. 1016 4th Ave. N.E., Jamestown
Van Houten, Mrs. Richard Oakes
Woodward, Mrs. R. S. 602 4th Ave. S.E., Jamestown

Eighth District

Borrud, Mrs. Chester G. 729 16th St. W., Williston
Craven, Mrs. John P. 409 E. 3rd Ave., Williston
Craven, Mrs. Joseph D. 915 W. 2nd Ave., Williston
Ellis, Mrs. Gordon E. 1102 Main, Williston
Fennell, Mrs. William L. Crosby
Hagan, Mrs. Edward J. 904 E. 2nd Ave., Williston
Hagan, Mrs. Joan 724 E. 1st Ave., Williston
Johnson, Mrs. Alan K. 1004 W. 12th St., Williston
Korwin, Mrs. Justin J. 701 E. 1st Ave., Williston
Lund, Mrs. Carroll M. 701 E. 1st Ave., Williston
McPhail, Mrs. C. O. Crosby
Oliver, Mrs. C. Watford City
Petty, Mrs. Charles R. 209 E. 14th St., Williston
Skjei, Mrs. Donald E. 1224 4th Ave. E., Williston
Strinden, Mrs. Dean R. 1717 W. 8th Ave., Williston
Walker, Mrs. H. Charles 718 E. 1st Ave., Williston
Wiederanders, Mrs. Rex E. 401 W. 5th Ave., Williston
Wright, Mrs. Willard A. 822 E. 2nd Ave., Williston

Ninth District

Ahlness, Mrs. Paul Bowman

Bowen, Mrs. Jesse W.	221 W. 7th Ave., Dickinson
Carter, Mrs. Robert G.	Hettinger
Dukart, Mrs. C. R.	208 W. 4th Ave., Dickinson
Dukart, Mrs. Ralph J.	S.W. of City, Dickinson
Foster, Mrs. Keith G.	734 W. 8th Ave., Dickinson
Gilliland, Mrs. Robert F.	445 W. 1st Ave., Dickinson
Gilsdorf, Mrs. Amos R.	870 W. 4th Ave., Dickinson
Guloien, Mrs. Hans E.	41 W. 5th Ave., Dickinson
Gumper, Mrs. Arnold J.	7 E. 4th St., Dickinson
Hanewald, Mrs. Walter C.	R.R. 1, Box 18, Dickinson
Hankins, Mrs. Robert E.	Mott
Hill, Mrs. Simon W.	Regent
Larsen, Mrs. Harlan C.	1005 W. 5th Ave., Dickinson
Nachtwey, Mrs. A. P.	115 W. 5th Ave., Dickinson
Ordahl, Mrs. Norman B.	N.W. of City, Dickinson
Raasch, Mrs. Richard F.	30 W. 8th St., Dickinson
Reichert, Mrs. Donald J.	1019 W. 5th Ave., Dickinson
Reichert, Mrs. Lawrence H.	543 W. 1st Ave., Dickinson
Rodgers, Mrs. R. W.	146 W. 6th St., Dickinson
Skwarok, Mrs. Walter	Hebron
Slominski, Mrs. Henry F.	Richardton
Smith, Mrs. Oscar M.	519 W. 1st Ave., Dickinson
Spear, Mrs. A. E.	610 W. 1st Ave., Dickinson
Thom, Mrs. Robert	Bowman

Tenth District

Chase, Mrs. Gilman L.	Mayville
LaFleur, Mrs. Harold A.	Mayville
Little, Mrs. James M.	Mayville
Little, Mrs. Roy	Mayville
McLean, Mrs. Robert W.	Hillsboro
Mergens, Mrs. Daniel N.	Hillsboro
Odegard, Mrs. Russell L.	Hatton
Oja, Mrs. Karl	Portland
Skelly, Mrs. George	Cooperstown
Wakefield, Mrs. Kenneth M.	Cooperstown

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Lawson, Mrs. Mason G.	200 Ridgeway, Little Rock, Arkansas

Both the Cream and Ointment rarely sensitize and are bactericidal to virtually all gram-positive and gram-negative organisms found topically, including Pseudomonas aeruginosa and Staphylococcus aureus.

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ANTIBIOTIC CREAM

Ingredients: Each gram contains: 'Aerosporin'® brand Polymyxin B* Sulfate 10,000 Units; Neomycin Sulfate 5 mg. (equivalent to 3.5 mg. Neomycin Base); Gramicidin 0.25 mg.

In a smooth, white, water-washable vanishing cream base with a pH of approximately 5.0. Inactive ingredients: liquid petrolatum, white petrolatum, distilled water, propylene glycol, polyoxyethylene polyoxypropylene compound, emulsifying wax and 0.25% methylparaben as preservative.

*U.S. Patent Nos. 2,565,057-2,695,261

Available: In 15 Gm. tubes.

'NEOSPORIN'® brand
POLYMYXIN B / BACITRACIN / NEOMYCIN
ANTIBIOTIC OINTMENT

Ingredients: Each gram contains: 'Aerosporin'® brand Polymyxin B Sulfate 5,000 Units; Zinc Bacitracin 400 Units; Neomycin Sulfate 5 mg. (equivalent to 3.5 mg. Neomycin Base).

Available: Tubes of 1 oz., 1/2 oz. and 1/8 oz.

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Book Reviews . . .

The Pediatric Patient—1963

edited by DAVID BAIRD COURSIN *and* SARAH R. GUSTAFSON, *183 pp., ill., Roche Laboratories, Nutley, N. J., 1963. $4.95.*

This book contains a resumé of recent advances in pediatrics which every medical practitioner could well afford to spend time reading. Only 183 pages long, it necessarily condenses its contents but does so effectively and objectively in almost all instances. The twelve chapters cover almost the entire field of pediatrics.

The chapter explaining the role of desoxyribonucleic acid and ribonucleic acid, as well as the problem of inborn errors of metabolism, is especially pertinent and clearly portrayed. The chapter dealing with the virus problem brings the reader up to date on the role of specific viruses in the etiology of disease. The chapter on vaccines contains the newest information on oral polio vaccine, including the administration and effectiveness of monovalent as compared with trivalent vaccine. Live and killed measles vaccines are also discussed in considerable detail, with information concerning modes of administration, reactions, and so forth. Immunization procedures against smallpox, influenza, diphtheria, tetanus, and pertussis are mentioned briefly.

Among other topics considered are antimicrobial therapy, immunity, nutrition, convulsive disorders, congenital malformations, malignancies in children, and rationale for tonsillectomy-adenoidectomy. At first glance it seems somewhat incongruous to find a discussion of indications for tonsillectomy-adenoidectomy in such a book, but this is an important matter and merits continuing consideration by all physicians.

L. G. PRAY, M.D.
Fargo

Living with Epileptic Seizures

by SAMUEL LIVINGSTON, *348 pp., ill., Charles C Thomas, Springfield, Ill., 1963. $6.50*

This book is based on a study of 15,000 epileptics. Dr. Livingston set out with the idea of discussing mainly the socioeconomic aspects of epilepsy, but he wound up with a well-written and interesting book which tells much about all phases of the disease.

The section on treatment is especially good. In this chapter, Dr. Livingston tells of all the many drugs used in the treatment of epilepsy.

Particularly helpful is the information he gives about bad and dangerous reactions of the several drugs. He shows that even phenytoin (Dilantin), which so often works well, will at times do so much harm that its use by a particular patient must quickly be stopped.

The section on what should be told the parents of an epileptic child is also good. As Dr. Livingston says, when a mother takes her typically epileptic child to the doctor knowing full well what is wrong and the doctor, to avoid embarrassment, says he does not know exactly what is wrong, all that happens is that the poor woman goes away much confused. Dr. Livingston wisely believes that the physician should talk frankly and honestly to the patients and their parents. A better understanding of epilepsy is needed.

Dr. Livingston does much to show how wrong physicians are today when they tell a mother that her epileptic child has only a low blood sugar. The doctor, by making some patients fast a long time, lowered the blood sugar to around 20 mg. and never produced a convulsion. As I remember, at the Mayo Clinic the neurologists looked for a low blood sugar in some 2,500 epileptics and never found a case.

Like most modern writers on psychosis, epilepsy, mental retardation, and other "unmentionable" diseases, Dr. Livingston becomes outraged at those few men who are willing to quote out loud and honestly the conclusions of the several research workers who have published data showing that from 37 to 80 percent of young epileptics have close relatives with some form of the epileptic syndrome. Actually, all the data we have in regard to the inheritance of epilepsy are doubtless well below what they should be. As yet, I know of no work by anyone who has gotten electroencephalograms on all of the near relatives of 100 young epileptics.

An astonishing statement is found on page 186, where the doctor says, "The significance of the relationship between electroencephalographic abnormalities and the incidence of epilepsy has not been established!" Evidently people such as Frederic and Erna Gibbs have wasted their lives!

Another place where I find Dr. Livingston's book disappointing is in his section on the epileptic temperament, especially the violent temper. I marvel that a man can treat 100 (let alone 15,000) epileptics without learning from many of them of their difficulties in adjusting to life with their fellows. In my experience with epileptics, I have been greatly impressed with the fact that the ones I see in the practice of internal medicine are seldom bothered much with seizures; their troubles are those of adjustment to living with others.

An astounding statement is found on page 289, where the author says, "We believe that most epileptics who wish to marry and rear children should be encouraged to do so!" Curiously, I have never seen a writer on epilepsy quote the statement of O. P. Kimball that there was epilepsy in the families of 37.5 percent of the epileptic children in his school.

WALTER C. ALVAREZ, M.D.
Chicago

Electrocardiography

by MICHAEL BERNREITER, *2nd ed., 202 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $7.50*

This book is written in a simple and straightforward manner so that it will be of value primarily as an introduction to the subject of electrocardiography. It should be useful, therefore, primarily to the medical student and the physician desiring to learn fundamental electrocardiography or, as the author states, to supplement a course that one might take dealing with this subject.

The first chapter deals with the electrical phenomena of depolarization and repolarization and the physical and physiological phenomena dependent upon and resultent from these. It briefly discusses intrinsic and intrinsicoid deflections, the conduction system of the heart, and the

(Continued on page 14A)

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(Continued from page 12A)

mechanics of taking the various leads and a description of what they record. There is also a simple discussion of Einthoven's triangle.

The second chapter concerns itself with the arrhythmias, and only the simple arrhythmias are described. The descriptions are concise and the illustrations are clear and adequate. Sinus bradycardia is defined as a sinoauricular rhythm with a rate of 50 or less instead of the more usual limit of 60 or less. Atrioventricular block is considered not with the arrhythmias but in the subsequent chapter on "Heart Block" together with the intraventricular conduction defects.

The subject of axis deviation is mentioned too casually and is rapidly passed over. The entire subject of hypertrophy is much too briefly presented, and too much of what should be subject material is incorporated into the legends of the illustrations, which are good. The subject of cor pulmonale, both acute and chronic, is covered in 1 brief paragraph, but, together with right ventricular hypertrophy, it is illustrated in a bit more detail.

Arteriosclerotic heart disease and the electrocardiographic manifestations of ischemia and infarction deservedly get better coverage and are well illustrated and diagrammed. Pericarditis and ventricular aneurysm patterns are included in this section as are the patterns of the electrocardiographic responses to exercise.

The electrocardiograms of congenital heart disease are covered in 2 short pages of text and illustrated with 11 pages of tracings. Essentially the same amount of coverage is accorded to the electrocardiographic manifestations of electrolyte imbalance. In a text of this kind, and in view of the brevity of the above 2 sections, the electrocardiogram in thyroid disease may be over-illustrated. Six pages of illustrations for myxedema could have been condensed to 1 page showing a comparison of side-by-side tracings before and after treatment with thyroid medication. Digitalis and quinidine are afforded about equal space in their illustrations. No other drugs are mentioned. A brief section on artifacts and a page devoted to the QT interval finish this volume.

The major criticism of this book is the brevity of its text. The illustrations are, for the most part, very good. This book can certainly be recommended to the beginner in electrocardiography, who will get from it a good practical approach to the subject. For the electrocardiographer who has passed the beginning stages and for the student who wants more than an approach, a more detailed text will be necessary.

MILTON M. HURWITZ, M.D.
St. Paul

Cardiovascular Surgery, 1962

edited by JOHN M. HOWARD, *American Heart Association Monograph No. 6, 203 pp., ill., The American Heart Association, Inc., New York, 1993. $3*

The editor, Dr. John M. Howard, of the Hahnemann Medical College and Hospital, has compiled a formidable series of short articles dealing with the trouble spots of cardiovascular surgery in 1962. He presents a well-rounded discussion of such pressing problems as the reconstruction of, partial replacement of, or total replacement of the aortic and mitral valve. The several leading centers with their advocates of each modality of treat-

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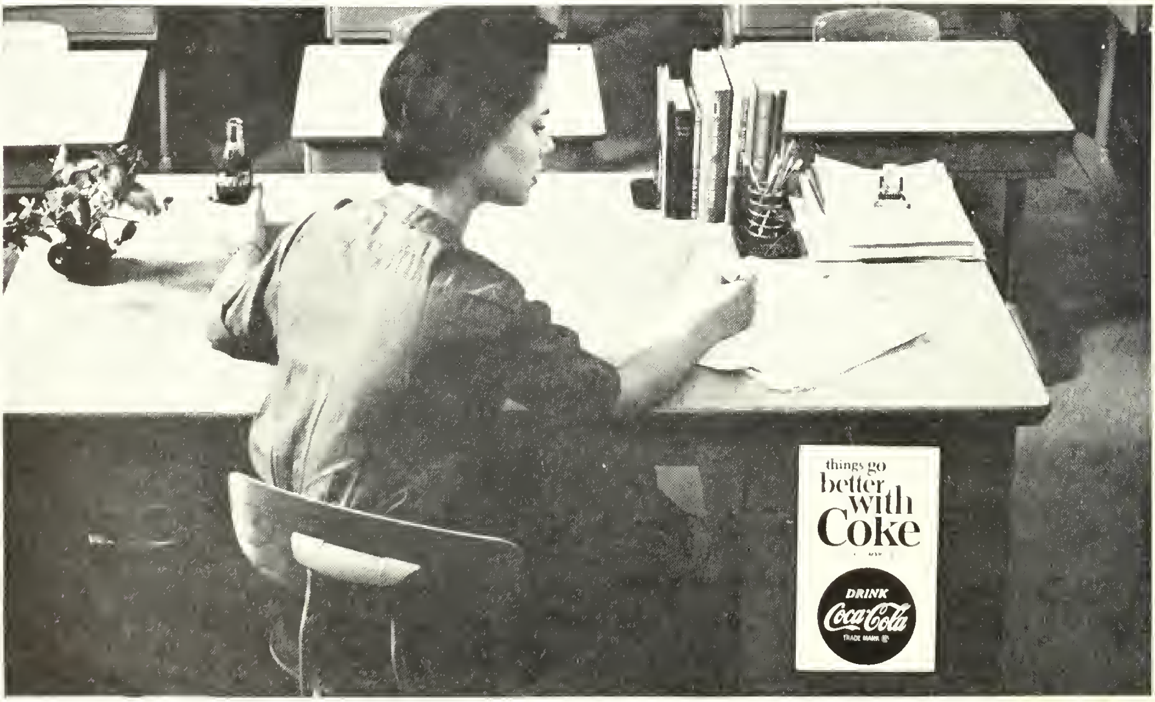

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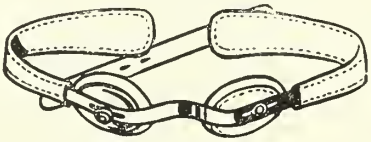

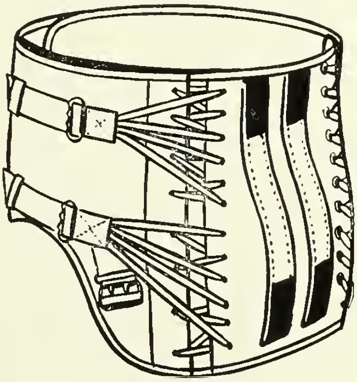

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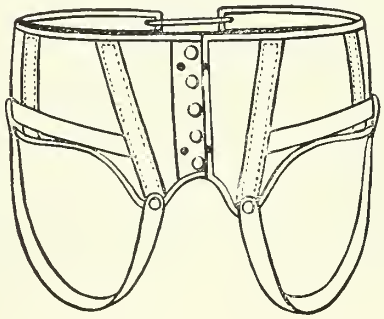

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(Continued from page 14A)

ment are cleverly pitted against each other in contiguous articles.

For a student who follows closely the discipline of cardiovascular surgery, there are several articles to sharpen research interest such as autotransplantation of the canine heart by Willman and associates, the red cell charge presentation by Bernstein and associates, and the mesenteric occlusion treated with low-molecular-weight dextran.

For an aspiring cardiac surgeon the series of articles on mitral and aortic valve replacement are musts. One cannot help but be impressed by the work and presentation of Albert Starr and associates—particularly the fact that the results include the very first clinical experiences, which would have discouraged a less stout personality. Starr covers concisely all the problems faced by a cardiac surgeon who attempts the treacherous waters of aortic valve replacement, including such refinements as anticoagulant therapy and the prophylactic use of mannitol for prevention of renal shutdown. Preceding this article, the editor includes one on essential resculpture of the diseased aortic leaflets by Scannell and associates. If one reads it carefully it is quite obvious that the authors are a little discontent with their results. Following Starr's article is perhaps the most exciting presentation: a sutureless method for replacing the aortic or mitral valve by Magovern and associates.

Over-all, the monograph offers comprehensive but short, readable articles on the heart valve problem as it currently stands. Among ancillary subjects covered are the cardiac pacemaker, hemodilution techniques for simple extracorporeal circulation, and a most interesting curiosity by Levy of the University of Minnesota.

Would this monograph appeal to a medical student? Yes. The student could quickly comprehend the trend of heart surgery as of 1962 or 1963. The monograph presents an easily understandable round-table discussion of the most salient problems today. The tables, illustrations, and pictures are noteworthy for clarity and simplicity. This journal would be a worthwhile addition to the student's permanent library.

For the general practitioner the monograph serves as a yearbook of progress in the field. He can use this book to good advantage for desk reference when he is faced with a patient who may be headed for the larger centers for heart or blood vessel surgery.

For the surgeon and internist the monograph is a tidy review of several cardiovascular journals and meetings. Dr. Howard and the American Heart Association have compiled a worthwhile monograph of a most dynamic and challenging subject.

SAMUEL W. HUNTER, M.D.
St. Paul

Essentials of Bacteriology

by ROBERT G. WHITE, *283 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $6.75.*

In these 283 pages, Dr. White attempts to explain "what bacteria, fungi, viruses and rickettsia do." One is inclined to wonder if this can be done. For the sake of brevity, White accepts and pays the inevitable price of setting down the major concepts without detail; the color and enrichment of meaning which detail can give are lost. Detailed explanation, however, is not White's purpose—rather it is to introduce the fledgling medical student to the immense and growing field of microbiology. Indeed the major merit of this work is the insight it gives into the interrelationships of bacteriology, virology, and immunology.

The first third of the book discusses microbial morphology and physiology and presents a discussion of the mammalian host response to microbial parasitism. The concepts are current; the first third is the best. This discussion is followed by a description of the cardinal characteristics of the common pathogenic microorganisms and this encompasses bacteria, fungi, viruses, and rickettsia. The book concludes on a practical note, with a brief summary of the principles of sterilization, prophylactic immunization, and chemotherpy.

Photographs are well chosen, and references are given to appropriate current review articles. The writing is clear, and the book is structured upon an organization which gives emphasis to the practical aspects of medical microbiology.

The harried sophomore medical student is likely to find this a reasonable and readable work.

JACK REDDIN, M.D.
Minneapolis

Textbook of Neurology

by H. HOUSTON MERRITT, *3rd ed., 803 pp., ill., Lea & Febiger, Philadelphia, 1963. $12.50*

Recent emphasis on and interest in "Neurology," the medical science dealing with the nervous system in both normal and disease states (coupled with recent advances in laboratory study of the nervous system), has resulted in several textbooks of neurology. This new textbook is an example of awakened interest in the more sophisticated methods of study and description of diseases of the nervous system and relates the neurological disease processes to the pathological cause.

Content is logically divided into 10 categories of neurological disease. Included are infections and vascular lesions which comprise a large number of neurological disorders. A large section dealing with tumors, heredodegenerative diseases, and traumatic injuries to the brain is presented in a clear, concise manner. Recent and newly-described disorders, diseases, and syndromes are also covered. Developmental defects, diseases due to toxins, metabolic diseases, and the ever-present demyelinating and paroxysmal disorders including epilepsy are thoroughly discussed.

Illustrations of the subject matter, the roentgenograms, and the rather moderate number of gross specimens as well as tables and figures from extensive studies by both the author and his colleagues, enhance the clarity of the text. All illustrations are of good quality and the tables and figures are most appropriately placed. The over-all appearance is that of an informative, well-organized text with an adequate 50-page index which has, fortunately, the subject matter actually appearing on the page quoted in the index. Even the term "bilharziasis" appears on page 158 as it should.

All in all, purchase of this book by student, specialist, or generalist should be strongly considered in view of the current interest in neurological disorders.

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News Briefs . . .

North Dakota

DR. ARDIS JEAN CANDY, psychiatrist, has joined the Quain and Ramstad Clinic staff in Bismarck. A University of Wisconsin graduate, Dr. Candy interned at Wesley Memorial Hospital, Chicago, and completed psychiatry residency requirements at the Veterans Administration Hospital, Seattle. Dr. Candy is a member of the American Psychiatric Association.

° ° ° °

DR. CHARLES A. STEVENS, JR., who specialized in obstetrics and gynecology at the University of Vermont affiliated hospitals, has joined the staff of the Northwest Clinic in Minot. Dr. Stevens practiced in Plattsburgh, N.Y., for five years.

° ° ° °

DR. THOMAS F. GIBSON and DR. SHELAGH M. MILLIGAN, husband and wife, have accepted staff positions with the Mandan Hospital. Originally from London, England, they practiced in Saskatchewan several years and in Mohall for the past year and a half. Dr. Gibson is a surgeon and Dr. Milligan a general practitioner with experience in obstetrics and pediatrics.

° ° ° °

DRS. PAUL L. JOHNSON, MARLIN J. E. JOHNSON, and ROBERT F. NUESSLE have been elected to partnership in the Quain and Ramstad Clinic, Bismarck. Dr. Leonard W. Larson, chairman, and Dr. Paul W. Freise plan to retire from the partnership but continue medical practice with the clinic. Dr. Larson, pathologist and a past president of the American Medical Association, joined the staff in 1924. Dr. Freise, specialist in obstetrics and gynecology, joined in 1926. Dr. Nuessle is a surgeon who joined the staff in 1937; Dr. Paul Johnson, a surgeon, and Dr. Marlin Johnson, an internist, joined in 1951.

° ° ° °

DR. MILTON O. BERG, a general practitioner with special interest in obstetrics and pediatrics, has joined the Valley City Clinic at Valley City. Dr. Berg received premedical and medical training at the University of North Dakota, Grand Forks, and the Bowman-Gray School of Medicine, Wake Forest College, Winston-Salem, N.C. Following internship at St. Luke's Hospital, Duluth, he practiced in Tioga and was president of the Kotana district medical society.

° ° ° °

DR. EUGENE CARPENTER of the University of North Dakota in Grand Forks has joined the Macdonald Clinic in Valley City. Dr. Carpenter was graduated from Northwestern University Medical School, Chicago, in 1940. After service in World War II, he practiced in Los Angeles and Columbia, Ala., before moving to Grand Forks.

Minnesota

DR. ROBERT GORES of Rochester has been installed as president of the Minnesota Society of Oral Surgery. Representatives of the Wisconsin and Iowa oral surgeons'

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societies also attended the meeting in Rochester, where Dr. Paul Scanlon of the Mayo Clinic spoke.

* * * *

DR. CHARLES E. BIGELOW, 84, general practitioner in Dodge Center, was honored by the people of his town recently. He retired from practice a year ago. Dr. Bigelow practiced for fifty-nine years, of which fifty-one were in Dodge Center. His uncle and father were pioneer doctors in Owatonna and Dodge Center. As a boy, Dr. Bigelow often watched Drs. William and Charles Mayo operate, shortly after St. Mary's hospital opened in Rochester.

* * * *

DR. FREDERICK C. WUEST has joined Dr. Malcolm A. McCannel and Dr. Bjarne Houkom of Minneapolis in the practice of ophthalmology and ophthalmic surgery. Dr. Wuest is a diplomate of the American Board of Ophthalmology. He recently completed seven years of Navy service after preophthalmology training at Yale University, New Haven, Conn., and the New York Medical College, New York City.

* * * *

DR. RICHARD E. FINLAYSON, St. Paul, is to leave this month for a half-year course at the School for Tropical Medicine in England. In August, he will go to Tanganyika and will be stationed at the Kiomboi Hospital. Dr. Finlayson, formerly of Bismarck, N.D., was commissioned for medical work in Tanganyika by the World Missions of the Lutheran Church in America.

* * * *

A SYMPOSIUM on Clinical Applications of Electronics in Cardiovascular Disease will be held Sept. 10 and 11 in Rochester, sponsored by the Minnesota Heart Association and the Mayo Clinic. Further information may be obtained from J. F. McCally, Mayo Clinic, Rochester.

* * * *

DR. HERBERT A. HARTFIEL, formerly associated with the university hospitals in Moscow, Idaho, and Albuquerque, N.M., has established a private practice in Sherburn. He is a native of Boyd.

South Dakota

DR. THOMAS K. HINES recently returned to his home town of Miller as a staff member of the Hand County Clinic, after more than four years of Navy service. Dr. Hines received his M.D. degree from the University of Southern California School of Medicine, Los Angeles, interned at the Los Angeles Naval Hospital, and received special aviation medicine training while in service.

Deaths . . .

DR. HERMENEGILD KLIMA, 86, died Dec. 5 in Clearwater, Fla. Dr. Klima practiced in Tyndall, S.D., for fifty years, was a staff physician at the Yankton State Hospital from 1948-53, and moved to Florida in 1953. A native of Czechoslovakia, Dr. Klima formerly owned the Tyndall Tribune in addition to his medical practice.

* * * *

DR. FREDERICK C. RODDA, 83, a Minneapolis pediatrician for many years, died Dec. 10 following an extended illness. Dr. Rodda was clinical professor of pediatrics at the University of Minnesota and was affiliated with Ab-

(Continued on page 20A)

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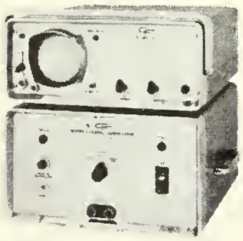

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NEWS BRIEFS

(Continued from page 19A)

bott and Northwestern hospitals in Minneapolis before retirement in 1950. He interned in Milwaukee and took postgraduate work in Vienna and Berlin in 1913-1914. He returned to Europe in 1918 with the American Red Cross.

* * * *

DR. JAMES R. BYRNE, 69, died Dec. 9 at the Veterans Administration Center, Hot Springs, S.D. Dr. Byrne received his M.D. from Creighton University, Omaha, and served in the Naval Medical Corps from 1917 to 1919. He established a practice in Edgemont, S.D., in 1937 and served that community for twenty-five years before entering the hospital at Hot Springs.

* * * *

DR. BENJA HUBERT HAYNES, 89, died at St. James, Minn., Dec. 4. Dr. Haynes had practiced in St. James as well as nearby Lewisville and Butterfield before retiring.

* * * *

DR. BERNARD HENRY SIMONS, 67, died Nov. 8 in Chaska, Minn. A native of that community, Dr. Simons was a University of Minnesota Medical School graduate and had been in private practice for forty-two years. He was a member of the American Medical Association and had been Carver County coroner for twenty-five years.

* * * *

DR. CECILE R. MORIARTY, 71, died Dec. 4 in St. Joseph's Hospital, St. Paul. A life-long St. Paul resident, Dr. Moriarty retired in 1962. She was a member of the American Medical Association, the Minnesota State Medical Association, the Ramsey County Medical Society, and the American College of Pediatrics. Included in the survivors is a sister, M. Berenice Moriarty, physician, of St. Paul.

* * * *

DR. JOSEPH P. MERRETT, 60, a Valley City, N.D., general practitioner for twenty years, died Dec. 2 at Valley City. Born in London, Ontario, Dr. Merrett received his M.D. degree at the University of Manitoba, Winnipeg. In 1929 he began practice in Marion, N.D. and remained there until 1943 when he started his Valley City practice. Dr. Merrett was a member of the American Medical Association, the North Dakota State Medical Association, and the American Academy of General Practice.

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DR. CHARLES SHEARD, 80, died Nov. 18 at St. Mary's Hospital, Rochester, Minn. Dr. Sheard was appointed head of the Mayo Clinic Section of Biophysics and Biophysical Research when it first was established in 1924 and remained in charge until retirement in 1949. His research was centered on the application of physics and mathematics to biology and medicine. After retirement, Dr. Sheard was appointed distinguished lecturer in ophthalmology at Tulane University School of Medicine, New Orleans, La. In 1952 and 1953 he served as interim dean of the Los Angeles College of Optometry. Dr. Sheard contributed more than 200 scientific papers during his career, and was the recipient of many honors. He was affiliated with at least 15 professional organizations in the United States and England, and in 1943 the Sheard Foundation for Education and Research in Vision was established in his honor at Ohio State University, Columbus. A native of Dolgeville, N.Y., Dr. Sheard received a B.S. degree from St. Lawrence University, Canton, N.Y., an M.A. degree from Dartmouth College, Hanover, N.H., and a Ph.D. degree from Princeton University, Princeton, N.J., in 1912.

COMING *in* *April*

Articles and features to be found in the next issue of The Journal-Lancet

Proctology, that branch of medicine which concerns itself with diseases of the colon and rectum, is one of the oldest medical specialties in the United States.

In April, the editors of The Journal-Lancet will present a special issue on the subject of proctology. Guest editor is William C. Bernstein, M.D., St. Paul, chief of the Division of Proctology, Department of Surgery, University of Minnesota Medical School.

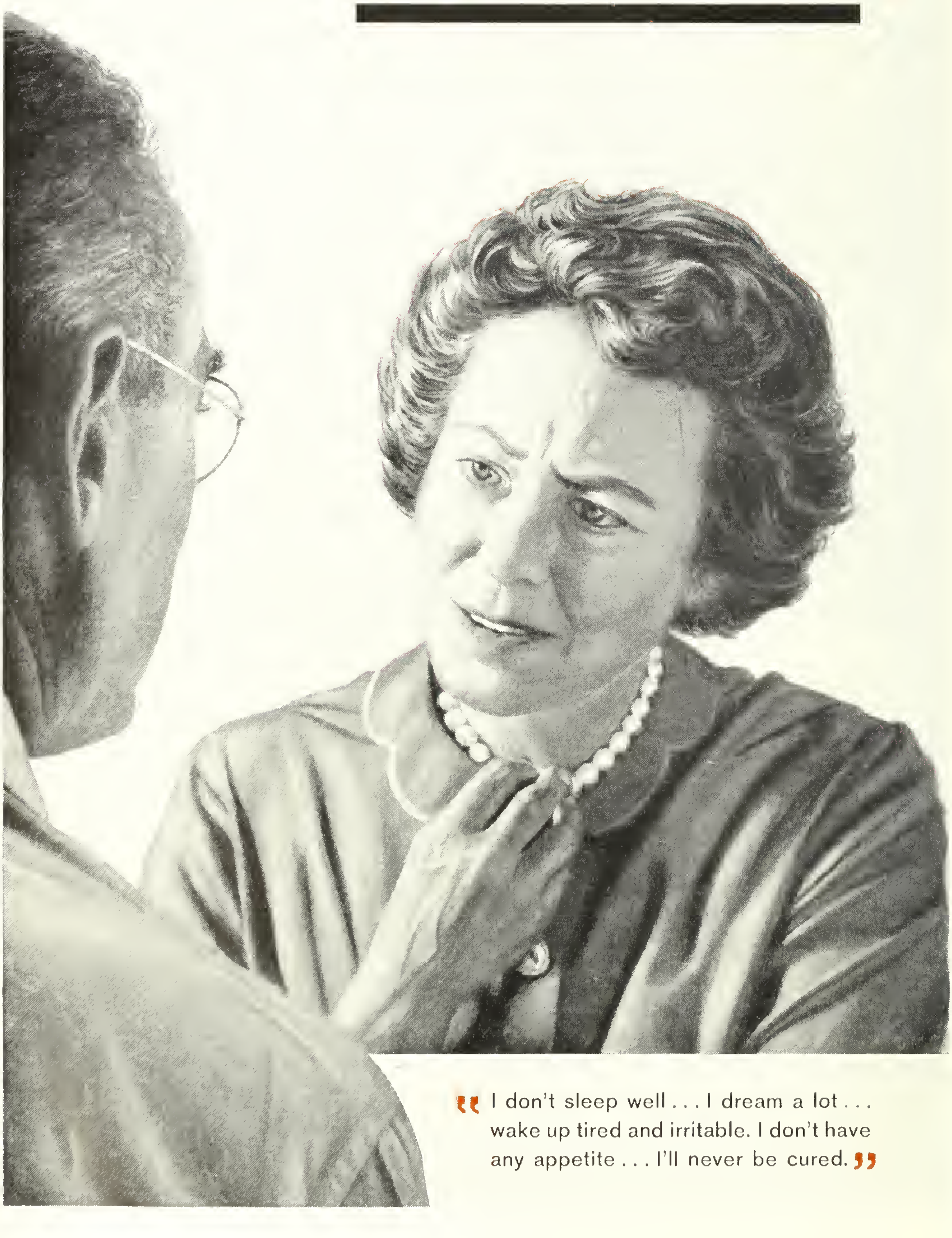
Dr. Bernstein, in his introduction, describes the efforts of early physicians in this country to obtain specialized training in this field, their studies in England, the efforts to counteract the influence of the charlatans engaged in the management of rectal diseases, and the introduction by the early medical leaders of the latest and best ideas for the treatment of medical and surgical diseases of the rectum and colon.

The key role of physicians in this part of the United States in the history of the development of proctology as a specialty is reported, and the spread of locally trained specialists in colon and rectal diseases to teaching institutions and medical clinics throughout the land is recounted.

Dr. Bernstein has assembled a group of papers of interest to both the specialist and the general practitioner. Titles and authors to be presented in this special number are:

- **Cancer of the Colon and Rectum and Cancer Detection,** by Owen H. Wangensteen, M.D., Minneapolis.
- **Present-Day Concepts of Rectal and Colon Polyps and Their Relation to Cancer,** by Neil W. Swinton, M.D., and Benjamin H. Schatman, M.D., Boston.
- **Treatment of Cancer of the Colon and Rectum,** by Maus W. Stearns, Jr., M.D., New York City.
- **Current Trends in the Surgical Management of Diverticulitis of the Sigmoid Colon,** by Lloyd F. Sherman, M.D., and Robert J. Tenner, M.D., Minneapolis.
- **Chemotherapy of Colon Cancer,** by B. J. Kennedy, M.D., Minneapolis.
- **Rectal Procidentia,** by Howard M. Frykman, M.D., Minneapolis.
- **The Skin Level Sigmoid Colostomy and Its Management,** by Frederick B. Campbell, M.D., and John G. Campbell, M.D., Kansas City, Missouri.
- **Surgical Treatment of Ulcerative Colitis,** by Charles Neumeister, M.D., Minneapolis.
- **The Treatment of Hemorrhoids,** by James A. Ferguson, M.D., Grand Rapids, Michigan.
- **Proctologic Problems in Children,** by Saul Schapiro, M.D., Brooklyn.
- **Perirectal Abscesses and Fistulas,** by Newton D. Smith, M.D., Fort Worth.

RECOGNIZE THIS PATIENT?



“I don’t sleep well . . . I dream a lot . . . wake up tired and irritable. I don’t have any appetite . . . I’ll never be cured.”

The Journal-Lancet

SERVING THE MEDICAL PROFESSION OF MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA, AND MONTANA

Experimental Background for Surgical Treatment of Coronary Heart Disease

JOHN H. KENNEDY, M.D.
Cleveland

HALF THE DEATHS in the United States each year are due to cardiovascular disease, and 20% of these result from coronary heart disease, the commonest single cause. Some 800,000 persons suffer a heart attack each year, and approximately 25% die in their first attack.[1] A second but equally significant consideration is the morbidity of the more or less distressing symptoms of the surviving 75%, one-third of whom never return to gainful employment. They live an average of ten years after onset of angina pectoris, with the statistical anticipation of dying of coronary heart disease or its complications. Since the best medical therapy does not alter the course of the atherosclerotic process, it is natural that an attempt at surgical relief is sought eagerly by physician, patient, and surgeon. It is disappointing that in more than 80% of patients,[1,2] the distribution of the occlusive process makes them unsuitable for a direct surgical approach.

HISTORICAL BACKGROUND

A description of a case of angina pectoris is found in the memoirs of the Earl of Clarendon dated 1632,[3] but the first description of the disease was by Morgagni[4] in 1707. Classic description is credited to Heberden[5] in 1772. In 1776, Jenner[6] related angina pectoris to coronary artery disease. His observations are reported to antedate those of Heberden, but they were withheld because he had recognized the symptoms in his esteemed teacher, Hunter,[7] who described his own angina in 1794.

With the report by Withering[8] in 1785 of the use of tea made from leaves of the purple foxglove for dropsy came the advent of medical therapy for coronary heart disease. In 1867, Brunton[9] suggested use of amyl nitrite. In 1879, Murrell[10] introduced nitroglycerin for relief of angina pectoris. Einthoven[11] of Leiden introduced use of the electrocardiogram in 1903. Best[12] of Toronto reported in 1936 the results of use of heparin in experimental coronary occlusion. The first report of heparin therapy in human coronary heart disease was made by Levine in 1941. Lam[13] reported in 1943 the use of bishydroxycoumarin (Dicumarol) in man. Beck[14] reported in 1947 the first successful application of electric countershock in ventricular fibrillation, and in 1955[15] the first successful resuscitation with ventricular fibrillation outside an operating room after a fatal heart attack. It is of

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interest that the last two significant contributions to medical therapy were made by surgeons.

Surgical treatment, like medical treatment, has been palliative for coronary atherosclerosis. This disorder of the metabolism of fats has not been significantly altered by either.[16] In 1889, Francois-Franck[17] proposed cervical-thoracic sympathectomy for angina pectoris. The suggestion was accepted by many during the next thirty years, but the most significant experience in neurosurgical relief of angina pectoris was that of White[18] and Bland[19] during 1933–48. In 1935, Beck[20] introduced a series of techniques designed to produce obliterative pericarditis and a parasitic myocardial circulation. In 1939, Fieschi[21] of Italy proposed ligation of the internal mammary arteries for coronary heart disease. In 1946, Vineberg[22] introduced implantation of a systemic artery into the myocardium. Murray[23] of Toronto reported the first successful resection of an atheromatous segment of coronary artery and arterial graft replacement with survival in 1953. In 1961, Burke and Nardi[24] reported endarterectomy for a fatal coronary occlusion.

CURRENT METHODS OF ASSESSMENT

Important to the successful appraisal of the results of a method of treatment, medical or surgical, is the availability of a well-controlled method of clinical or laboratory evaluation. Unfortunately, none is available for assessment of patients before and after procedures designed to increase myocardial blood supply. Relief from angina pectoris was shown by Cobb[25] and Dimond[26] in double-blind studies to be an undependable criterion because of a strong placebo effect. Brachial artery-coronary sinus oxygen gradient as a measurement of coronary flow gradient depends on myocardial oxygen requirements and not on the numbers of intercoronary anastomoses present. Electrocardiographic response to graded exercise should be of value, although not without some hazard. Unfortunately, time of onset of S-T segment changes in response to exercise is not often observed. Selective coronary arteriography popularized by Sones[27] and others is a promising method of study, of critical importance in selecting patients for direct surgical procedures on the coronary circulation. Unfortunately, it is not quantitative of blood flow. Since the natural history of coronary heart disease and the outlook with medical therapy are uncertain, mortality statistics have not proved to be a profitable method of assessment. With few adequately controlled series, the fact that a patient has survived a revascularization procedure does not guarantee that he would not have done so with medical treatment.

Measurement of retrograde backflow was popularized by Mautz and Gregg[28] in 1937. However, blood flowing against atmospheric pressure cannot be considered equivalent to that flowing against the net resistance or conductance of the coronary arterial bed. Use of injection masses of various types is limited by the particle size of the colloid used, and conclusions from one species cannot necessarily be extended to another. Some investigators have reported abundant intercoronary communications in 10% of normal dog hearts, not a common finding in man. Direct flow measurements remain the ultimate means of assessment, but no investigator has reported that flow introduced by a revascularization procedure increased in response to a hypoxic stimulus, a maneuver which would demonstrate the true functional capacity of the implanted vessel. Myocardial hypoxia represents the most potent stimulus without surgery to coronary vasodilatation and to development of a collateral circulation. Application of indicator-dilution techniques to quantitate coronary blood flow has shown some promise. Physiologists believe that the shaded area shown in Fig. 1 represents the contribution made by the coronary circulation, but this is mathematically difficult to establish. Use of injected radioactive substances and precordial or peripheral scintillation counting, reported by Sevezius and Johnson,[29] represents a refinement of a dye-dilution method. The nitrous oxide method of Bing[30] is likewise an indicator-dilution technique.

SURGICAL TREATMENT

Table 1 classifies surgical procedures presently available for coronary sclerosis. The first 2, sympathectomy and thyroid ablation, are unappealing because they do not approach the basic problem.

Internal mammary artery ligation. Internal mammary artery ligation teaches the lesson of proposal on theoretical grounds, enthusiastic acceptance on the basis of incomplete laboratory assessment, a shift to more careful reappraisal, and ultimate rejection. In 1880, Langer[31] demonstrated paracardiac collaterals by way of the mediastinum, pulmonary hila, pericardium, and diaphragm. In 1921, Gross[32] demonstrated coronary-pericardial communications by injection techniques in postmortem specimens. Wearn[33] described in 1928 and in 1932 an extracardiac coronary anastomotic system. In 1958, however, Sabiston[34] showed that this system normally car-

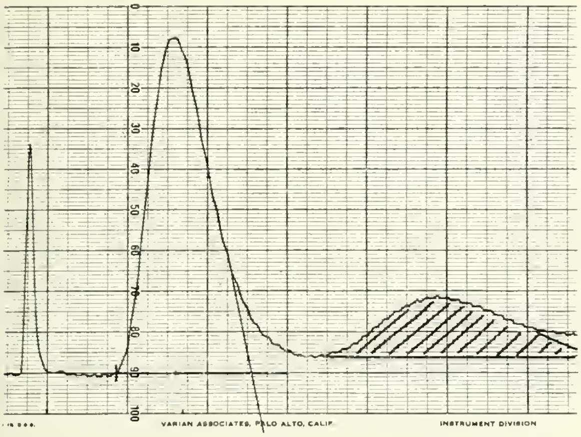

Fig. 1. Normal indicator-dilution curve following injection of 5 mg. indocyanine dye into pulmonary artery and brachial artery sampling: Shaded portion is thought to represent coronary flow.

ried only 2.8 ml. per minute by direct flow measurements. In 1939, Fieschi[21] proposed bilateral internal mammary artery ligation for angina pectoris, done successfully by Soja and Cesa-Bianchi. In 1955 and 1959, Battezzati[35] and others in Italy popularized the procedure and cited relief of angina in 63 to 95% of patients. Glover,[36,37] in 1957, 1958, and 1960, reported excellent results with this technique in a series of 239 patients, with relief or improvement in 63%. In 1960, reporting injection studies, he was unable to find experimental evidence that the ligation had a consistent influence on the collateral circulation to the heart.[38] He concluded that the clinical benefit in angina pectoris resulted from an unknown mechanism. Cobb[25] in 1958 and Dimond[26] in 1960 demonstrated well-controlled double-blind studies suggesting that the relief was a placebo effect. There is no physiological reason why the procedure should help. Ligation of the artery only increases pressure proximal to the ligation insofar as it increases total peripheral resistance. Because of its small size, it would be expected to increase peripheral resistance only slightly. Direct flow measurements show no change in the mammary system following distal ligature. Sabiston[34] was able to produce an increase in total peripheral resistance in the mammary system in dogs only after chronic ligation of vertebral, thyrocervical, and distal subclavian arteries.

Epicardial operation. In 1903, Thorel[39] and Merkel[40] independently suggested that pericardial adhesions might improve blood supply to the ischemic myocardium. In 1932, Moritz[41] and others, using injection of colloidal suspensions of lamp black, demonstrated pericardial-coronary anastomoses following obliterative pericarditis. In 1932, Beck[42] produced experimental intercoronary anastomoses in the dog by epicardial abrasion or by application of irritants. In 1936 and 1937, O'Shaughnessy[43] introduced mechanical abrasion and a pedicle graft of omentum. Moia and Accvado[44] in 1937 and Lezius[45] in 1938 demonstrated vascular connections when adhesions were produced between the heart and omentum, muscle tissue, mediastinum, or lung. In 1941, Beck abandoned use of muscle grafts and introduced partial constriction of the coronary sinus and poudrage—the Beck I operation. During 1942-55, Thompson[46,47] advocated use of talc insufflation into the pericardial cavity; the response was good in selected patients. In 1943, Schildt[48] reported results of a study of 31 mechanical and chemical irritants in dogs and concluded that powdered asbestos produced adhesions which gave the greatest protection against left anterior descending coronary artery ligation. Arterialization of the coronary sinus—the Beck II operation—enjoyed briefer popularity but was abandoned because of excessive operative mortality. All these procedures were reported to have produced a decrease in angina pectoris in 70 to 90% of patients. Some authors[49] have claimed that the projected five-year mortality was reduced to 50% of that anticipated in patients not treated surgically. This claim is difficult to prove because of lack of controls and double-blind studies. Brofman,[50] in 1956, reviewed results of the Beck I operation in 185 patients. Operative mortality was less than 6%, and 90% of patients were improved and had returned to work. An enthusiastic credo was stated: "A positive diagnosis of coronary disease is the indication for operation . . . and the protection afforded by the opera-

TABLE 1

SURGICAL PROCEDURES AVAILABLE FOR CORONARY SCLEROSIS

Indirect or Palliative

1. Denervation by division of sympathetic fibers
2. Decrease metabolic requirements
   Thyroidectomy (surgical or radioiodine)
3. Increase coronary collateral circulation
   Ligation internal mammary arteries
   Production of adhesions
   Transplantation of a systemic artery to the myocardium

Direct or Reconstructive

Anastomosis of internal mammary artery to coronary artery
Endarterectomy
Vein patch

tion need not be withheld until the patient has at least one myocardial infarct." At the same time, investigators not so enthusiastic about the Beck procedures sought other means of permitting the myocardium to acquire a parasitic blood supply. Hannon[51] compared the application of jejunum stripped of its serosal surface with other methods of revascularization of the heart. By serial ligation of major coronary arteries, he prepared 14 dogs that survived with only a septal coronary artery patent. Smith,[52] in 1958, reported 19 patients treated by cardiopneumopexy, employing compressed polyvinyl sponge; 4 died. Mazel,[53] in 1961, compared mortality and results following cardiopexy and endarterectomy and concluded that cardiopexy offered a lower risk, a 3% operative mortality. Of patients so treated, 92% were alive five to eight years later. However, in the original experimental work on obliterative pericarditis in animals, coronary backflow figures equal to those obtained from Beck I operation were produced by pericardiotomy alone. Gage and others,[54] in an animal study simulating the slow thrombotic occlusion of coronary circulation in man, were unable to demonstrate any protection afforded animals by earlier production of adhesive pericarditis. On theoretical grounds, it would be anticipated that constrictive pericarditis would develop in a certain number of patients in whom adhesive pericarditis had been produced by introduction of mechanical irritants. Beck[55] cited this possibility and emphasized the need for small amounts of abrasive materials—0.2 gm. of powdered asbestos. Constrictive pericarditis has not been found in patients subjected to operative procedure designed to produce obliterative pericarditis. Because of the palliative nature of the procedure, done when longevity may be limited, it is possible that patients may not have survived sufficiently long to permit formation of constrictive pericarditis.

Internal mammary artery implantation. Vineberg,[56] in 1946, reported remarkable results from implantation of the left internal mammary artery dissected free, ligated, transected, and pulled into a tunnel in the left ventricular myocardium beside the left anterior descending coronary artery. In 1950, Vineberg and Niloff[57] reported that anastomoses developed in 16.6% of experimental animals, demonstrated by injection of a plastic mass by way of the previously implanted internal mammary artery. When preliminary stenosis of the left anterior descending coronary artery was produced, 54.5% of implanted vessels produced anastomoses with the left coronary circulation. In 1955, Vineberg,[58] in a review of a four-year clinical experience, reported that 71% of ischemic dog hearts demonstrated such anastomoses. The same year, Bakst[59] studied the Vineberg operation and reported intimal proliferation of the implanted systemic artery among survivors. Retrograde flow from the ligated anterior descending coronary artery was 2.3 ml. per minute, equal to the collateral flow by way of the circumflex coronary artery. He concluded that no increase attributable to the surgical procedure could be demonstrated. In 1957, Smith[52] reported use of a Dacron arterial prosthesis from the descending thoracic aorta to the left ventricular myocardium in 2 patients as a modification of Vineberg's procedure. In 1958, Vineberg[60] reported that the hearts of 6 of 7 patients who died of coronary heart disease following implantation of the left internal mammary artery into the myocardium had patent anastomoses between the internal mammary artery and the left coronary circulation. In 1960, he reported a comparative study in dogs of various techniques in which the anastomotic procedure was challenged by slow constriction of right and left coronary arteries.[61] He concluded that his procedure proved to be the only favorable one. In 1960, he[62] used compressed polyvinyl sponge to encourage formation of a collateral circulation. He also reported 8 operations with no deaths.

Physiological measurements were carried out by Sabiston, Fauteux, and Blalock[63] after implantation of a carotid artery into the left ventricular wall. Although the vessel remained patent in 82% of animals, blood flow in the artery at a mean perfusion pressure of 150 mm. of mercury was an average of 5 ml. per minute, with a range of 1 to 20. Coronary sinus flow measured by direct methods was unaltered by opening or closing the vessel. Blood flow in the implanted vessel was also measured by Vineberg[61] and his co-workers; they reported flows of the same magnitude. Sewell[64] adapted Vineberg's procedure in 1962, implanting internal mammary artery, vein, and surrounding perivascular fat into a left ventricular myocardial tunnel in a series of animals and 1 patient. Angiographic studies postoperatively demonstrated patency of the artery, but its role in myocardial circulatory augmentation is uncertain.

EVOLUTION OF DIRECT OPERATION

Basic to consideration of direct surgical treatment is the work of Schlessinger and Zoll[65] who, in 1941, used lead agar injection techniques in postmortem hearts and found that 64% of obstructing atherosclerotic lesions were less than

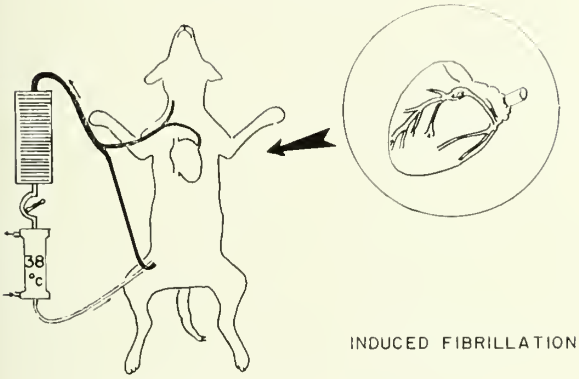

Fig. 2. Animal preparation used to study coronary arterioplasty

5 mm. long and involved the first few centimeters of coronary artery. In 1953, Murray[23] reported the first successful resection in man of an atheromatous segment from the left coronary artery with arterial graft reconstruction. Absolon,[66] in 1956, carried out surgical anastomoses between coronary circulation and the subclavian, internal mammary, and left carotid artery in animals; operative mortality was 30%. In 1957, May[67] reported the first successful coronary endarterectomy in dogs. Bailey,[68] in 1957, reported the first survival after coronary endarterectomy in man, with use of the heart-lung machine. In 1959, Longmire and Cannon[69] reported coronary endarterectomy in eleven patients without cardiopulmonary by-pass, with 5 operative deaths. They demonstrated that anastomotic flow would permit four to six minutes of coronary artery cross-clamping, making endarterectomy without extracorporeal circulation or intraluminal shunts feasible. Szilagy,[70] in dissections of postmortem material, found that of patients past 50 years of age or with known arteriosclerotic heart disease, 21% would have been curable by surgery. Similar observations were made by Swedlund, Achor, and Edwards[1] in 1962.

Adelson[71] reported a study of 500 patients who died outside the hospital with what was thought to represent a heart attack; 26% had no arterial occlusion or evidence of infarction and 63% had no recent disease in coronary arteries in the heart muscle. The importance of electric instability of the heart because of areas of differential myocardial oxygen tension has been emphasized by Beck and others. The recent work of Warren and Wandall[72] has cast some doubt on this concept.

In 1959, Senning[73] reported patency in dog coronary arteries closed with Dacron patches. In 1961, he reported successful autogenous arterial patch graft to the coronary artery in man.[74] Ellis,[75] in 1962, compared various methods of closure of the dog coronary artery and concluded that direct suture produced stenosis and autogenous arterial patch graft the best long-term results.

Our interest in coronary arterioplasty in the laboratory began only this year. Findings have established that survival of animals after coronary artery angioplasty by application of autogenous arterial patch grafts with extracorporeal circulation is feasible. Follow-up injection studies of animal hearts demonstrate patency and increase of lumen at the site of arterioplasty (Fig. 2). A disc oxygenator and heat exchanger primed

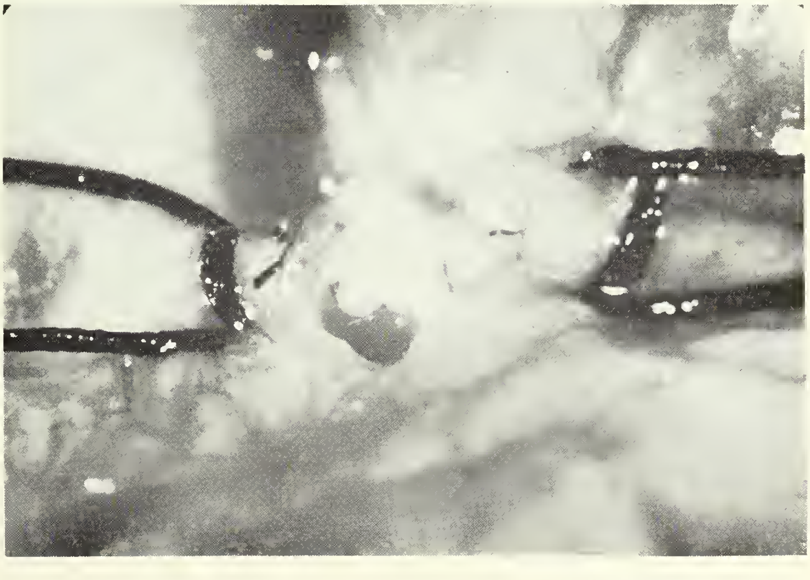

Fig. 3. Patch graft arterioplasty, left anterior descending coronary artery, × 3.5

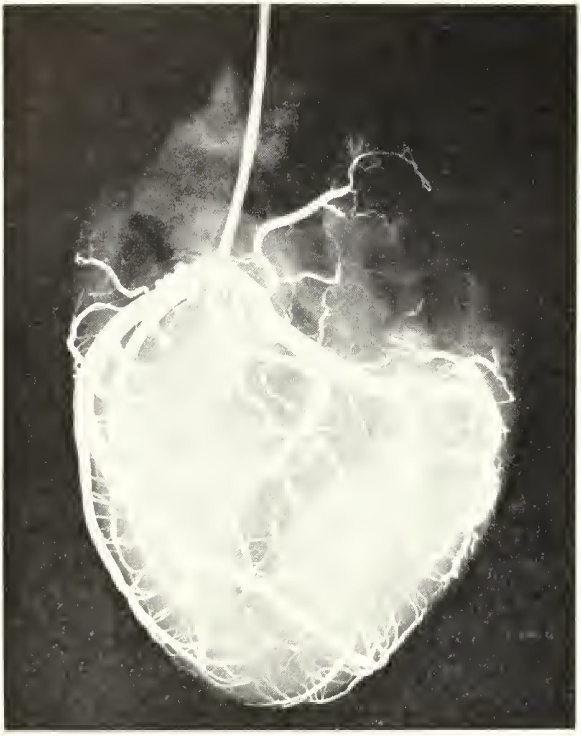

Fig. 4. Postmortem radiograph, dog heart, following patch-graft angioplasty, left anterior descending coronary artery. Barium injection by way of cannulated left coronary artery

with a mixture of half heparinized donor blood and half 0.85% saline is connected to the animal by way of jugular and femoral vein cannulas and femoral artery perfusion. The left atrium is vented into the venous line of the system to avoid congestive changes in the lung during ventricular fibrillation. Fibrillation is induced to provide a quiet operative field by application of a 10-volt direct current to the myocardium for five seconds. The animal is heparinized to prevent intravascular clotting during extracorporeal circulation, after which the anticoagulant is antagonized with protamine sulfate. The left anterior descending coronary artery is dissected to preserve the septal branch. Traction sutures are applied to occlude the artery temporarily. A 3-mm. linear incision is made, and an autogenous femoral artery patch is sutured into it with 7-0 silk. In some animals, cyanoacrylate monomer adhesive (Eastman Adhesive 910) was used to close the arteriotomy. Use of adjuncts such as the dissecting microscope, suggested by Jacobson,[76] has not been necessary. The work of Roe[77] and Glenn[78] has suggested that oxygen requirements of the fibrillating myocardium are much less than those of the beating heart; this probably explains why the myocardium remains pink even with occlusion of the anterior descending coronary artery for the period necessary to carry out the arterioplasty. Following restoration of normal heart beat, the animal maintains good arterial pressure. The thoracotomy is closed in layers, the cannulas are withdrawn, and the wounds of cannulation closed. Figure 3 shows a completed anastomosis magnified 3.5 times. The oval vascular patch and the interrupted 7-0 silk sutures can be seen. Figure 4 shows a radiograph of an injection study of a barium mass into the coronary circulation. Site of the patch graft is visible and is of greater diameter than the proximal or distal coronary artery. Figure 5 shows a similar study following coronary arterioplasty using cyanocrylate adhesive.

Table 2 reviews the recorded experience in the literature of direct coronary artery reconstruction in man. The best-reported statistics are those of Bailey,[79] who, in 1960, accounted for 15 operations with only 2 deaths. Results were good to excellent in 8 patients. Period of follow-up was not stated. Of 50 patients reported in the literature who were operated on by various methods, 36 survived, a mortality of 7.2%. Length of follow-up has not been stated in all papers but has ranged from three to eighteen months. Only 2 authors, Crafoord[80] and Senning,[81] have published postoperative angiograms and ergometric studies documenting patient benefit, both in 1961.

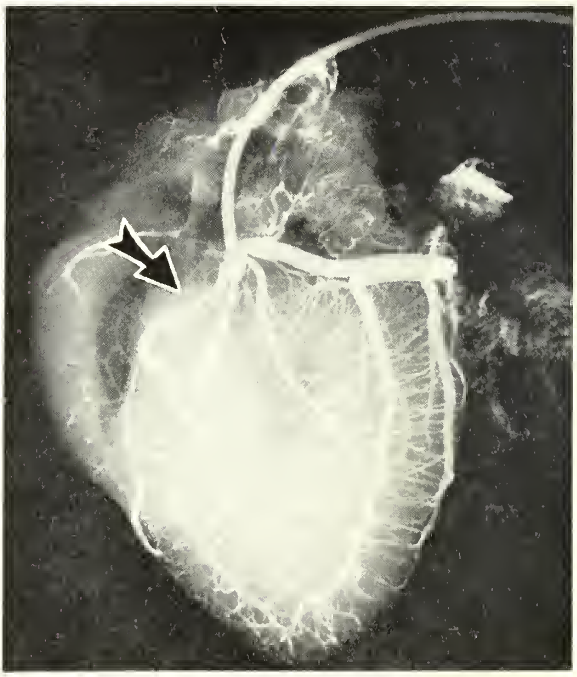

Fig. 5. Postmortem barium angiograph, dog heart, following closure left coronary arteriotomy with cyanocrylate monomer adhesive 910 (Eastman)

TABLE 2

DIRECT CORONARY ARTERY RECONSTRUCTION

Author	*Patients*	*Method*	*Survived*	*Follow-up*
May 1958	3	Endarterectomy	2	2 Well
Bailey 1957	(2)	Luminal shunt	(2)	Three months
Bailey 1960	15	Double-pump hypothermia	13	Time not stated Good to excellent 8 Late death 1
Crafoord 1961	1	Hypothermia-limited endarterectomy and vein patch heart bypass	1	Patent on angiography five months later, improved ergometry
Satinsky[64] 1959	1	Retrograde endarterectomy	1	Eighteen months
Longmire 1959	11	Endarterectomy	5	
Sabiston[84] and Blalock 1961	6	Endarterectomy	5	Two to four months
Sabiston 1960	5	Endarterectomy	4	3 Not stated
Effler[85] 1963	4	Bypass vein patch	3	Not stated
Senning 1961	1	Double-pump hypothermia Arterial patch and endarterectomy	1	Patent on angiography three months later, improved ergometry
Dennis 1963	3	Bypass	1	Not stated
	50	Various	36	Three to eighteen months
		ACUTE CORONARY OCCLUSION		
Burke and Nardi 1961	1	Endarterectomy during cardiac massage	0	Died eighteen hours
Urschel 1963	6	Bypass endarterectomy and patch	0	0
	7	Various	0	0

Application of emergent coronary artery reconstruction in man following acute coronary occlusion, though theoretically appealing, has been disappointing. Burke and Nardi,[24] in 1961, reported endarterectomy for an acute, so-called fatal heart attack with ventricular fibrillation which occurred in the hospital, but not in the operating room. Endarterectomy was carried out during cardiac massage. The patient was successfully defibrillated and awoke neurologically normal. He died eighteen hours later of a second occlusion. Urschel,[82] in 1963, reported 6 patients receiving emergency coronary endarterectomy and application of a vascular autograft using extracorporeal circulation; none survived. Such patients deserve the most heroic efforts, since they are dying. It must be remembered, however, that the work of Beck and others[15] has shown that some who suffer ventricular fibrillation from electrical instability of the heart can be resuscitated by defibrillation alone.

Currently, direct arterial surgery would seem to have a place in the treatment of coronary arterial disease in carefully selected patients. The ideal patient is a relatively young man, severely incapacitated and unable to work, not in heart failure, preferably without cardiomegaly, and with no episode of myocardial infarction within the preceding six months. The diagnosis must be certain. Pain similar to that in angina pectoris can be produced by other diseases, including pericarditis, esophagitis, dissecting aneurysm of the aorta, gallbladder disease, pancreatitis, peptic ulcer, and acute hepatic dilatation due to congestive heart failure. Angiography must show truly segmental disease at a level amenable to direct surgical attack. Chatterjee[2] examined the hearts of 434 male patients with arteriosclerotic heart disease at a Veterans Administration Hospital. Postmortem examination showed that only 18 who did not respond to medical therapy were suitable for direct surgical treatment. Of 13 with severe angina and angiographic evidence of an occlusive process, 7 were amenable to operation—53% of the 13, or 20% of the entire group.

CONCLUSION

At best, surgical therapy, like medical treatment, is palliative. The arteriosclerotic process, a disease of aberrant metabolism of fat, is not cured. Proof of palliation requires long-term assessment of well-controlled studies. Despite the fact that the first attempt at surgical treatment was made twenty-eight years ago, few reports with proper controls have been published. Direct surgical treatment is justified in selected patients on an investigational basis. For the remainder, enlightened medical therapy seems prudent. James B. Herrick,[83] in his classic description of coronary thrombosis in 1912, wrote: "The hope for the damaged myocardium lies in the direction of securing a supply of blood through friendly neighboring vessels so as to restore so far as possible its functional integrity."

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Esophageal Atresia and Gasless Abdomen

With and Without Tracheoesophageal Fistula

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BEFORE the remarkable work of men like Levin and Ladd in 1938 and Cameron Haight in 1941, all infants born with esophageal atresia and/or tracheoesophageal fistula were doomed to death. At the present time 60 to 90% of such infants leave the hospital alive.[1,2]

Even though the pathological anatomy, diagnostic measures, and surgical treatment of esophageal atresia with or without associated fistula are well established,[3–6] occasionally a surgeon dealing with these patients may encounter an unusual case which does not follow the usual pattern in some way.[5,7] The following case is such an example.

Case 1. Baby girl J. was the 2.2 lb. first of twins born to a Para 1-1-0-2 Negro mother on January 28, 1963. Ninety hours after birth, we saw the infant in consultation because of excessive mucus and dyspnea with cyanosis. X-ray revealed infiltration of the right upper lobe and absence of gas in the gastrointestinal tract. A urethral catheter passed through the nose failed to enter the stomach and coiled in the upper esophagus. Dye instillation visualized the blind proximal esophageal pouch extending to the level of the third thoracic vertebra.

Since there was no evidence of gas in the gastrointestinal tract, the diagnosis of atresia of the esophagus without tracheoesophageal fistula was made and subsequently gastrostomy and cervical esophagostomy were performed.

On February 2, gastrostomy feeding was initiated with sugar water. At the second feeding the infant became dyspneic and gastrostomy feeding was noticed to "run out of the baby's mouth." On the subsequent evening feeding, the nurse observed that when the feeding was placed in the gastrostomy tube, it would then run out of the cervical esophagostomy. Unfortunately, this experience had to be repeated twice to further convince the nursing and resident staff of its occurrence.

The infant developed severe aspiration pneumonia and expired a day later. At postmortem examination, a tracheoesophageal fistula was demonstrated. The fistula was of the common type, connecting trachea to distal esophagus, and was found to be patent at the time of autopsy. Other pathological findings were: bilateral lower lobe pneumonia, large interatrial septal defect, and a small interventricular septal defect.

Four days later we were confronted with a similar situation.

Case 2. Baby girl G., born February 5, 1963, from a pregnancy associated with polyhydramnios, was referred to us at 48 hours of age because of excessive mucus and cyanosis associated with feedings. The birth weight was 4.1 lb.

A rubber tube inserted through the nose coiled in the esophagus and there was no evidence of gas in the gastrointestinal tract.

With the unpleasant memory of our past experience still very much alive, we decided not to rely solely on lack of gas in the gastrointestinal tract as absolute evidence of absence of a tracheoesophageal fistula. We, therefore, proceeded with a gastrostomy and further evaluated the distal esophagus at the same time. A radiopaque catheter was inserted through the gastrostomy and directed cephalad into the esophagus. The catheter met a blind pouch at the level of the diaphragm. Hytrast was injected through the catheter and an x-ray obtained with the infant in Trendelenburg position. The Hytrast outlined a pouch extending just above the diaphragm. Being convinced of the absence of a fistula we then proceeded with a cervical esophagostomy. The patient was discharged February 13, 1963, is doing well at present, and gastrostomy feedings are being given by the mother at home.

DISCUSSION

Atresia of the esophagus without tracheoesophageal fistula constitutes about 9% of all differ-

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ent types of this anomaly. Review of the literature reveals that lack of gas in the gastrointestinal tract is generally accepted as indication of absence of a fistula. Reference has been made to the possibility of presence of a tracheoesophageal fistula in spite of lack of air in the gastrointestinal tract by Potts and Idriss[1] and by Haight.[4] From 169 cases of tracheoesophageal fistula reported by the former authors, there was only one patient who did not have air in the gastrointestinal tract. It was postulated that a small fistula may be present but be plugged with mucus. Richardson and associates have also indicated that in rare cases a fistula may be associated with a gasless stomach.[8] In our patient the fistula was found to be of usual size and patent at the time of postmortem examination.

In view of the above experience, we believe that in cases of esophageal atresia without evidence of gas in the gastrointestinal tract, a gastrostomy should be performed and the distal esophagus further evaluated at that time. Insertion of a radiopaque catheter through the gastrostomy into the esophagus may be all that is necessary since the length of distal esophagus will determine the course of surgical treatment. It has been reported by some authors that in rare cases of esophageal atresia without fistula, the distal esophagus is long enough to make a primary anastomosis possible. There is also the rare variety of the common type fistula in which the fistula segment is atretic and does not permit air to enter the gastrointestinal tract.[4] In both of these groups, probing the distal esophagus will reveal the true nature of the anomaly and thus enable the surgeon to attempt a primary anastomosis.

In conclusion, when faced with a patient with esophageal atresia with absence of gas in the gastrointestinal tract, it is sound policy to proceed with a gastrostomy and further evaluate the distal esophageal segment at that time. If the blind distal esophageal segment ends at the level of the diaphragm (true esophageal atresia without fistula) a cervical esophagostomy should also be performed and reconstruction planned in the future. If a fistula is detected or the distal segment is found to be lengthy enough, a transthoracic repair would be the procedure of choice.

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MACROSCOPIC BLEEDING occurs during the first or second trimester of 1 out of every 4 pregnancies. Bleeding is much less common in the first than in subsequent pregnancies and is of no pathological significance in about half of the women affected. In the first trimester, bleeding leads to spontaneous abortion in about one-fourth of patients even when antiabortive therapy is used. Second trimester bleeding is less common and less significant. Extrinsic causes include vaginal and cervical lesions, ectopic pregnancy, and blood dyscrasias. Intrinsic causes are implantation bleeding, cyclic and decidual bleeding, hydatidiform mole, placental polyps, placenta previa, abruptio placentae, fibroma, and abortion. Data were obtained in a study of 500 pregnant women of whom 113 had bleeding in the first and 19 in the second trimester.

EDWARD A. BANNER, M.D., Mayo Clinic and Foundation, Rochester, Minn. Postgrad. Med. 34:129-132, 1963.

Pathogenicity of Attenuated and Avirulent Tubercle Bacilli

Their Implication as Vaccinating Agents in Humans

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LIVING ATTENUATED STRAINS of tubercle bacilli such as R1Rv, certain strains of bacille Calmette-Guérin (BCG), and isoniazid (INH)-resistant, catalase-negative tubercle bacilli, when given by inhalation to guinea pigs, are known to produce a limited number of tubercles in the subpleural region of the lungs and in the hilar lymph nodes. Conversely, when given to guinea pigs which have established pulmonary silicosis, they produce widespread pulmonary silicotuberculosis from which the animals die.[1,2,3]

The living avirulent strains, H4Ra, R1Ra, and H37Ra, sensitize guinea pigs to old tuberculin and purified protein derivative and produce in mice and guinea pigs protection against challenge with virulent human tubercle bacilli.[4–11] In certain instances, protection is as good as that produced by the attenuated strains R1Rv and BCG.

In experiments reported by one of the authors,[12] H37Ra tubercle bacilli remained stainable and culturable in caseous lesions of guinea pigs up to thirty-six and thirty-four months respectively, at which time the studies were terminated. Furthermore, the living avirulent strains have been carefully checked since their isolation[12] and since 1937 have remained constant in colony morphology and avirulent for guinea pigs when tested routinely on an annual basis.

The present study was undertaken to substantiate and to elaborate on earlier studies[13,14] which had shown that the pathogenicity of living avirulent R1Ra and H37Ra strains of tubercle bacilli was not enhanced in silicotic guinea pigs and that they, in turn, may prove more suitable than living attenuated R1Rv or BCG organisms as vaccinating agents. Use of vaccines in populations or individuals whose resistance is depleted by malnutrition, intercurrent disease, or environmental stress makes this question of more than theoretical interest.

MATERIALS AND METHODS

Six strains of tubercle bacilli were used in this study. Three were of the attenuated type and 3 of the avirulent type. The strains were designated as follows:

Attenuated types. R1Rv – The original R1 strain was isolated in 1891 by Dr. E. L. Trudeau and in 1937 was dissociated by Dr. W. Steenken.

BCG–A subculture of the original Paris strain received from Dr. Birkhaug, New York State Department of Health, Albany, New York.

H37Rv, INH-resistant, catalase-negative – Made resistant to 25 μg. of INH in 1952 by Steenken.

Avirulent types. R1Ra–Dissociated from the R1 strain in 1937 by Steenken.

H37Ra–The original H37 strain was isolated by Dr. E. R. Baldwin in 1905 and in 1934 was dissociated by Steenken and Oatway.

H4Ra–The original H4 strain was isolated from sputum in 1936 and dissociated in 1937 by Steenken.

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Sixty female guinea pigs, weighing approximately 300 gm. each, were divided into groups of 10 animals to a cage. Six cages containing 10 animals each were housed in a dust room and dusted with quartz (SiO_2), designated as No. 325 Silex M-3, eight hours a day, five days a week, for eight months. Dust counts showed an average count of 500 to 900 million particles per cubic foot of air, the particles being less than 10 μ in size.

After eight months of dusting, the animals were removed from the dust room, regrouped along with 60 healthy guinea pigs which served as nondusted controls, and infected with the various attenuated and avirulent tubercle bacilli.

Using a De Vilbiss atomizer, 10 dusted and 10 healthy animals each received 10 puffs of a saline suspension of tubercle bacilli strain R1Rv containing 5 organisms per oil immersion field. The remaining 5 strains of tubercle bacilli were administered in the same dosage and by identical routes of infection to identical animal groupings as the R1Rv strain. All of the animals responded with positive skin reactions when tested intracutaneously with 0.1 ml. of 5% old tuberculin six weeks after infection. Animals receiving the attenuated strains reacted more strongly to tuberculin than those receiving the avirulent strains.

None of the animals was exposed to quartz dust after being infected. All were allowed to live in a normal atmosphere until death occurred spontaneously, at which time a corresponding dusted or nondusted animal was sacrificed for comparison. The animals that had not died spontaneously of their disease, and had not previously been sacrificed, were sacrificed eight months from the day of their infection.

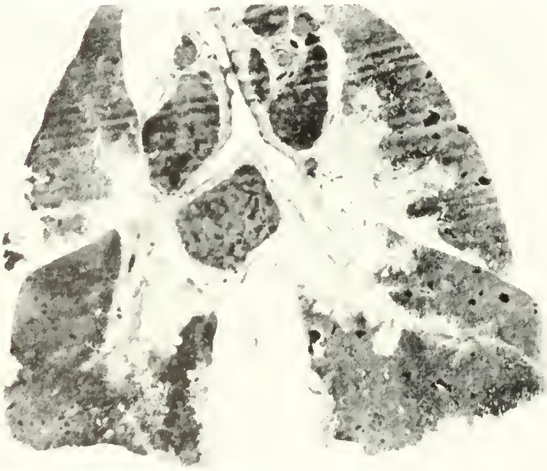

Fig. 1. Section of lung of an animal that received quartz dust by inhalation for eight months. Infection by inhalation with living attenuated R1Rv organisms. Sacrificed after eight months of infection. Note markedly enlarged fibrocaseous silicotuberculous tracheobronchial lymph nodes and widespread silicotuberculosis with areas of caseation in the lung.

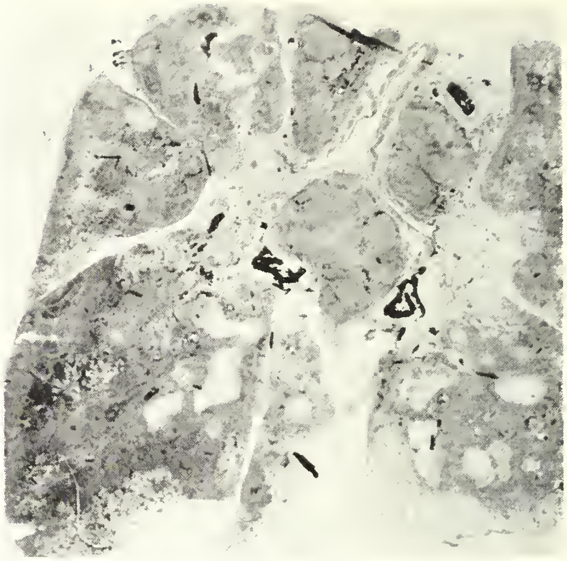

Fig. 2. Section of lung of an animal that received quartz dust by inhalation for eight months. Infection by inhalation with living attenuated H37Rv isoniazid-resistant, catalase-negative organisms. Sacrificed after eight months of infection. Note markedly enlarged fibrocaseous silicotuberculous tracheobronchial lymph nodes and widespread silicotuberculosis with many areas of caseation and cavity formation in the lung.

Gross and histological studies of tissue and bacteriologic culture were performed on all animals. Tissue obtained at autopsy was fixed in 10% neutral formalin for histological study. The whole lungs from a representative number of animals in each group were fixed by intratracheal injection with formalin until distended to thorax size.

RESULTS

Pathological findings. See figures. The nonsilicotic (nondusted) animals infected by inhalation with either R1Rv, BCG, or H37Rv isoniazid-resistant, catalase-negative tubercle bacilli had tubercles in the subpleural region of the lungs and in the hilar lymph nodes. None of the animals developed progressive disease. At the eighth month, when all living animals were sacrificed, well-circumscribed, small, gray tubercles of the regressive type, some with caseous centers, were present in the lungs of all animals.

On the other hand, animals that were silicotic and infected by inhalation with either R1Rv or H37Rv isoniazid-resistant, catalase-negative tubercle bacilli, developed widespread silicotuberculosis of the lungs. The hilar lymph nodes were markedly enlarged, which in turn produced

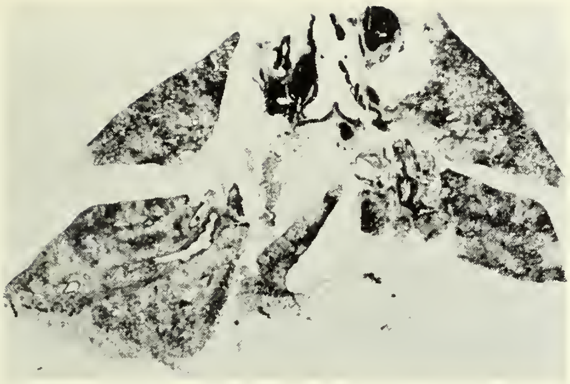

Fig. 3. Section of lung of an animal that received quartz dust by inhalation for eight months. Infection by inhalation with living attenuated BCG organisms. Sacrificed after eight months of infection. Note slightly enlarged silicotuberculous tracheobronchial lymph nodes and widespread disseminated silicotuberculosis in the lung.

marked narrowing of the adjacent bronchi. Caseation was present in the lungs of all animals and, in many instances, small cavities were also present (Figs. 1 and 2).

Animals in which silicosis had been produced, and that had been infected with BCG by inhalation, developed silicotuberculosis, but not to the extent of that produced in the animals that had received R1Rv or H37Rv isoniazid-resistant, catalase-negative tubercle bacilli. The hilar lymph nodes were not as markedly enlarged either (Fig. 3).

Nondusted animals that received either H37-Ra, R1Ra, or H4Ra avirulent strains of tubercle bacilli by inhalation developed only an occasional, small nonnecrotic tubercle in the lungs and hilar lymph nodes (Fig. 4). Animals that had been made silicotic, and had received H37-Ra, R1Ra, or H4Ra tubercle bacilli by inhalation, failed to develop silicotuberculosis (Fig. 5).

Bacteriology. Small blocks of diseased tissue were removed aseptically from the lungs of animals that had advanced silicotuberculosis and that had received the attenuated strains of tubercle bacilli: R1Rv, BCG, or H37Rv isoniazid-resistant and catalase-negative. Using a small pair of scissors, the tissue was minced and then transferred to a teflon grinder and ground to a very fine suspension. The ground material from each animal was seeded on American Trudeau Society medium, and the resultant growth was inoculated subcutaneously into 2 normal guinea pigs. This and all subsequent pairs of inoculated animals reacted to 5% old tuberculin when skin was tested intracutaneously. At the end of ninety days, the animals were sacrificed and the amount of disease was noted. None of the animals had progressive disease. Small caseous abscesses were present in the inguinal region at the site of inoculation and, in a few animals, small pinpoint caseous lesions were present in the iliac node adjacent to the site of inoculation.

DISCUSSION

From the results of this and previous studies,[4–11] it is suggested that further experiments be undertaken to evaluate the avirulent tubercle bacilli such as R1Ra, H37Ra, and H4Ra as vaccinating agents in humans as opposed to the attenuated strains BCG and R1Rv. We also urge that special consideration be given to the use of living avirulent tubercle bacilli as vaccinating agents, in place of living attenuated tubercle bacilli, for miners and industrial workers who are exposed to atmospheres containing increased concentrations of silica.

SUMMARY

In this study, it was shown that none of the nonsilicotic animals developed progressive disease which resulted in death regardless of whether they received living attenuated or avirulent tubercle bacilli.

The attenuated strains R1Rv and H37Rv isoniazid-resistant and catalase-negative did produce many disseminated caseous tubercles throughout the lungs. The BCG strain produced disease, but to a much lesser extent, whereas all 3 avirulent strains produced only an occasional tubercle.

In the silicotic animals, the attenuated R1Rv and the H37Rv isoniazid-resistant, catalase-negative organisms produced widespread pulmonary

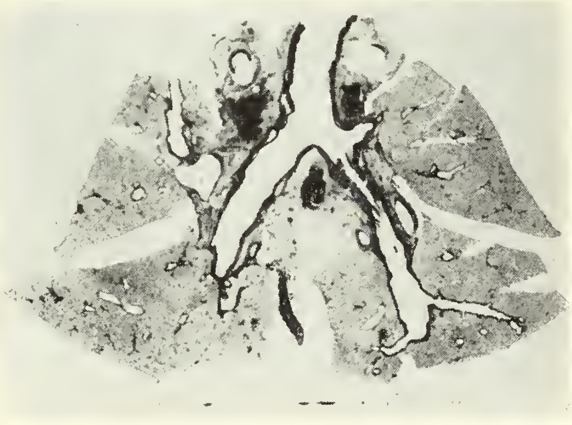

Fig. 4. Section of lung of a nondusted animal that received living avirulent R1Ra organisms by inhalation. Sacrificed eight months after infection. Note absence of gross disease. Animals that received living avirulent H37-Ra and H4Ra organisms showed similar pathology; photos omitted.

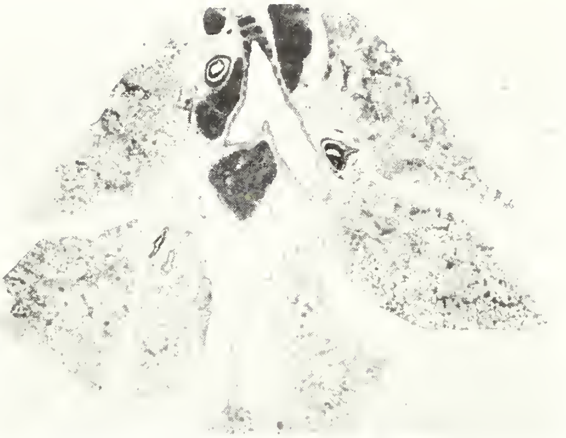

Fig. 5. Section of lung of an animal that received quartz dust by inhalation for eight months. Infection by inhalation with living avirulent R1Ra organisms. Sacrificed eight months after infection. Note slightly enlarged silicotic tracheobronchial lymph nodes and disseminated, widespread, uncomplicated silicotic nodulations. Animals that received living avirulent H37Ra and H4Ra organisms showed similar pathology; photos omitted.

disease which, in certain instances, resulted in death of the animal. The BCG strain produced widespread disease, which was not as severe as that produced by either the R1Rv or the H37-Rv isoniazid-resistant, catalase-negative strains. None of the silicotic animals that received the avirulent R1Ra, H37Ra, or H4Ra organisms developed silicotuberculosis within the eight-month sacrifice period of the experiment.

None of the organisms from animals which were given attenuated tubercle bacilli and died of silicotuberculosis produced progressive disease when subinoculated into normal guinea pigs. An absence of an increase in virulence of the organisms originally used for infection was thus indicated.

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Cardiology in the Renaissance

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THE BROAD PURPOSE of this report is to trace the development of knowledge of the anatomy, physiology, and pathology of the heart during that portion of the renaissance spanned by Leonardo da Vinci (1452–1519) and William Harvey (1578–1657). This development will be presented in the light of the age which produced it, with emphasis on extramedical influences and the renaissance "world view," which strongly determined the advance of medicine. We will consider this "world view" in the light of its subtle effects upon medicine, with particular references to advances in cardiology.

INTRODUCTION

The renaissance was a period of change, a shift in long-accepted attitudes toward all aspects of life. This change appears in bold relief against the provincial scholasticism of the middle ages. The renaissance is remembered chiefly for great achievements in art and literature, but it is also the age in which the spirit of modern science began to emerge. Although both the theory and practice of renaissance medicine appear crude to us today, when examined in historical perspective, medical progress was indeed as remarkable as the achievements in art and literature. The advances in medicine in this age, in fact, illustrate clearly how the progress of learning in the renaissance was the result of the interaction of all the disciplines: history, economics, religion, philosophy, mathematics, astronomy, philology, and political science, as well as the graphic arts.

The study will first present background material to document the extent of medical knowledge, with particular reference to the heart, prior to and in the early renaissance. Major contributors to the expansion of the knowledge of cardiology in the sixteenth and early seventeenth centuries will then be considered, at the same time demonstrating the relationship of their contributions to the contemporary intellectual and cultural milieu. Cardiology did not exist as a branch of medicine as such during the renaissance; the term, "cardiology," is used to distinguish this discipline from other developments in medical history.

PRERENAISSANCE MEDICINE

Primitive medicine was governed by superstition, and disease was attributed to the entrance of evil spirits into the body. Therapy was chimerical, consisting of chants, spells, and concoctions to exorcise the invading spirits. The wonders of the heart were viewed with awe and were considered due to some supernatural influence. Although primitive man's instinctive reaction to the causes and treatment of disease bears many parallels to modern medical concepts, the ancient beliefs in magic and supernatural powers impeded a scientific approach to medicine.

A rational approach to the human body was initiated during the sixth and fifth centuries B.C. in Greece. The Greeks recognized a basic regularity in nature and believed that it was possible to discern the causes through reason. Their approach to the human body was anatomic, and where their scant physiological knowledge failed them, teleology and philosophical speculation sufficed. Aristotle (384–322 B.C.) postulated that the heart was the prime organ of the body, the seat of the intelligence, and the source of the body's heat. Furthermore, he named the aorta and he believed that the beating of the heart and the pulsation of the vessels were due to the expansion of the blood within them.[1]

Hippocrates (460?–377 B.C.) relied on observation and reason. He attributed disease to an

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imbalance of the humours: black bile, yellow bile, blood, and phlegm. This theory was logical if one considers the changes in the body fluids during disease. Appreciation of the central role and vital functions of the heart prompted Hippocrates to speculate that the heart was invulnerable to disease. Other physicians described the valves (Erasistratus), distinguished arteries from veins (Praxagoras), and developed elaborate and often conflicting theories as to the dynamics of the heart and the movement of the blood. Galen's (131–201 A.D.) authoritative elucidation of heart structure and the nature of circulation resolved these conflicts and proved to dominate medical thinking for nearly fourteen hundred years.

Galen's contributions to cardiology dominated early renaissance thought. He dogmatically and confidently elaborated the anatomy, physiology, and pathology of the human body and supported his theories by experimental and sometimes contrived data, as well as speculation. Galen taught that ingested food was carried to the liver, where it was changed into blood and endowed with the "natural spirit" responsible for growth and nutrition. From the liver, the blood then ebbed to and fro in the veins, part of it being carried to the right ventricle where its impurities ("fuliginous vapours") were removed by exhalation. A small portion of the venous blood seeped through "invisible pores" in the interventricular septum to the left ventricle, where it was mixed and "tempered" by the incoming air from the lungs and charged with "vital spirit."

While in the heart, the blood was subjected to the innate heat of the heart (calor innatus); as it ebbed in a tidelike fashion in the arteries, it endowed the organs with function. In the brain, the blood was enriched with a third pneuma, the "anima" (Latin for "soul") or animal spirit, which coursed through the hollow nerves causing motion and sensation.[2] Galen correctly surmised the nutritional and lifegiving function of the blood as it transports the 3 "spirits" to the tissues, but his assertion of 2 separate circulatory systems connected by invisible pores remained unchallenged until the time of Vesalius.

Hasty dismissal of Galen because of his errors denies the intrinsic logic of the system he devised. His theories evolved from observation and experiment, however limited and inexact, coupled with an imaginative and creative, if somewhat teleological, approach to biological phenomena. He wished to systematize nature into a pragmatic and understandable pattern; he sought, as did the Greeks before him, the empirical truths inherent in nature's design.

Galen himself defined the conditions which govern discovery, even though he frequently disregarded his own admonitions: "Everything which comes under the cognizance of human intelligence is comprehended either through the senses or by the reason; and as there are many things of a physical nature which escape the senses, so our reason often fails to master those of a different kind. A sincere lover of the truth, therefore, should never withhold his assent from things plainly evident on account of others which are obscure, nor accept those which are doubtful for the sake of what is really known."[3]

With some imagination, we can visualize how Galen formulated his theory of the movement of the blood and the function of the heart. The liver, a large, purple, highly vascular organ, was the logical site to which to attribute the manufacture of the blood, deriving its raw materials for this process from the ingested food. The vena cava then distributed this newly-made blood to the right heart for purification, to the left heart for endowment with "vital spirit," and to the rest of the body for nourishment; this much was evident from mere anatomic observation. Since the microscope was not yet available to reveal anastomoses and suggest a pulmonary circulation, Galen was forced to postulate the existence of minute pores for the passage of blood through the interventricular septum. This concept is not fanciful to anyone who has watched the rain seep into the soil through no apparent holes.

Galen also dealt with the pulse, which was then a well-known phenomenon; the arteries, he taught, pulsated synchronously with the heart. Much of Galen's writing has a contemporary ring; his notions of blood and circulation include a demonstration of an isolated, beating heart and an experiment showing the motor power of the heart by observation of the blood pulsating between the heart and a ligated artery. Although many of Galen's theories were erroneous, he must be credited with a contemporary scientific curiosity and a versatile imagination.

Few advances were made in the field of cardiology during the period between Galen's death and the beginning of the renaissance. Intellectual development throughout Europe was greatly retarded by barbarian invasions, recurrent wars, and political upheaval. The preservation of knowledge was relegated to the monasteries.

The influence of the Arabs during this period cannot be neglected. Ackerknecht[1] offers a concise summary statement: "Arab medicine did not lack the traits that make western medieval medicine so uncongenial to modern minds; the sterile adherence to classic authorities, the prevalence of astrology, the aversion to anatomical studies, the degradation of surgery, and the predilection toward cautery and laudable pus in surgery. But it was greatly superior to western medicine in its far more complete knowledge of the Greeks, in its extensive drug lore, and in its development of medical hospitals."

Medicine in the middle ages was considered not to be science but an art, and a lucrative one according to Chaucer's Doctor of Physik:

> In sangwyn and in pers he clad was al,
> Lyned with taffata and with sendal,
> He kepte that he wan in pestilence
> For gold in physik is a cordial;
> Therefore he loved gold in special.[5]

The low opinion of medical practitioners is reflected in the words of a medieval critic: " . . . it suffices him to know by heart four aphorisms of Hippocrates, a dozen passages from Galen, and several other quotations from a classical author, together with the names of various diseases, all of which could be included in one page of writing."[6]

Medical practice was empirical: it consisted of diagnosis by examining the urine ("water casting") and therapy by bloodletting. The suitable time for phlebotomy and the rules for the inspection of the urine were carefully outlined in the medieval physician's *vade mecum.*[7] An extensive speculative system was built on the weakest foundation of data; philosophy and astrology dominated the physician's prognostications. Since surgery involved manual labor, it was considered menial and was relegated to the barbers. Furthermore, the Church considered heretical all who opposed dogma; fear of excommunication and of burning at the stake were powerful inhibiting forces on scientific curiosity. Rigid adherence to the ancients and the retarding influences of the feudal system and the Church kept medicine virtually static until the beginning of the Italian renaissance.

CARDIOLOGY IN THE RENAISSANCE

Leonardo da Vinci. The most impressive and versatile figure in the renaissance was Leonardo da Vinci; he embodied most completely the dynamic spirit of the period. Da Vinci's contribution to cardiology stemmed from a desire to enrich his art by patient anatomic dissection. His curiosity and diversity of interests led him to make vastly important discoveries in many fields, including cardiology and medicine. Da Vinci's notes were not published until two hundred years after his death so that during his lifetime his influence was spread only by his personal contacts. In him art and medicine achieved new dimensions from scientific observation.

Sudhoff[8] expresses the relationship between medicine and art in these terms: "The creative artist and the true physician have one outstanding property in common, which they alone possess in the fullest measure, namely, the single eye to reliability, the all-embracing insight, the greatest gift of seeing things as they really are, which impels them to pierce all risks, to see the kernel within the shell, the quickening play of life beneath the surface of things." Da Vinci's contribution to cardiology illustrates the fusion of the artist and the scientist in one man, and, more significantly, demonstrates how the renaissance spirit affected the development of medicine.

Da Vinci was so impressed by the heart that he was prompted to write in the margin of one of his sketches, "Wonderful instrument invented by the Supreme Master."[9] His many sketches made at the dissecting table accurately depict the anatomy of the heart. He explained the obliquity of the heart *in situ* by the galenic theory of the counterbalancing weight distribution of the organs; but, he further inquires, "how is it with the bat who sleeps suspended upside down?"[10] Such was the searching curiosity of this man.

Da Vinci's theory of circulation was similar to Galen's, but he made several important contributions. He stressed the role of the atria and accurately described the valves, chordae tendineae, and papillary muscles; in addition, he speculated upon the role of the "reversive nerves" (vagi) in the movement of the heart.[11] He attempted to explain how the heart served as the generator of the body's heat by ascribing it to the flux and reflux of the blood through the septum. Although erroneous, this shows his characteristic attempt to explain phenomena on a natural basis.

Da Vinci was sufficiently imbued with galenic tradition to believe in presence of the pores in the interventricular septum. In contrast, however, he fully reflects the renaissance attitude toward man the microcosm, and earth the macrocosm: "The organ of the sea is the reverse of that of the blood, for the sea receives into itself all the rivers which are totally produced from aqueous vapours that have ascended into the air, while the sea of the blood is the source of all the veins.[12]

It is interesting to note that da Vinci ascribes the origin of the blood to the liver and that he employs the metaphor of the tidal flux of the sea to describe the blood's movement and distribution. Both concepts are galenic. Although indoctrinated by traditional theories, Leonardo pursued a new truth: "Desiring not, nor being able to refer to the books of the Ancients, I shall refer to that which is more truthful than books, to experience, the instructor of instructors."[13] This contradiction is typical of a man who was educated in his age yet is somehow prescient. His overwhelming curiosity, his reliance on observation, experiment, and logic, give the reader of his notes a sense of his genius.

Following the beginnings of the renaissance in Italy, the revival of learning spread throughout the continent. Universities and libraries were founded, the printing press helped disseminate knowledge, and the spirit of inquiry and discovery was expressed in humanism and political reform as well as in astronomy, mathematics, and philology. The wave of change moved slowly, was present in varying degrees, and was largely limited to the great centers of learning: Venice, Florence, Padua, Paris, and Oxford.

During this period, important advances in cardiology were defined by Vesalius, Servetus, Fabricius, and Cesalpino. Until the publication of William Harvey's description of the physiology of the circulation, advances in this field were limited to descriptive cardiac anatomy and pathology. Even so, the progress of medicine reflected the intellectual climate.

Andreas Vesalius. The medical contributions of Andreas Vesalius (1514–1564) demonstrate remarkable scientific integrity; he marks, according to Sir William Osler, the beginning of modern medicine. In 1543, at the age of 28, Vesalius published his renowned *De Fabrica Humani Corporis* (the same year, incidentally, as the publication of Copernicus' *De Revolutionibus Orbium Coelestrum*). "The tremendous effect produced by it was due to the fact that the author was of an inquiring and even skeptical turn of mind, a tireless student who dissected in the spirit of research and not merely to confirm what Galen or any other precursor had taught.[14] This spirit is exemplified in the following passage from the first edition of *De Fabrica:* "We are driven to wonder at the handiwork of the Almighty, by means of which the blood sweats from the right into the left ventricle through passages which escape human vision."[15] And from the second edition: "I do not, therefore, see how even the smallest particle can be transferred from the right to the left ventricle through it (septum)."[16]

Vesalius' intellectual position in this matter is extremely complex in light of the conflicting influences surrounding him. The revival of the Greek classics had a dual effect on medical thought in the renaissance: the medical humanists and philologists, particularly Leonicenus and Linacre, propagated the classical version of medical concepts, extolling them as unquestionable truths; concomitantly, however, the Hellenic spirit of observation and experiment that had engendered these "truths" was also revived. Medical progress was caught in the struggle between tradition and discovery, dogma and new insight.

Vesalius himself was subject to these contradictory forces; he met with strong opposition from his contemporaries. Those who did agree with him thought that perhaps the anatomy of the heart had changed since Galen's time. Such was the burden of the authority of the ancients. Although Vesalius, in a fit of indignation, burned many of his manuscripts at Padua, *De Fabrica* had already begun to gain acceptance in the more open-minded medical communities. The close relationship between medicine and art is illustrated by Vesalius' friendship with Titian, who painted his portrait in 1550, and with Jan Kalkar, who illustrated *De Fabrica* in a style both artistic and precise.

Michael Servetus. Michael Servetus (1511–1553), an unusually intriguing figure, showed a desire for truth in everything to which he applied himself. His primary interest was religious reform, in which he dissented from both the Catholic and Calvinist views. During this period, medicine and religion were closely united, and many clerics were also physicians, for example, Linacre and Rabelais. Servetus was no exception. In Paris he came in contact with the teachings of Vesalius and Sylvius. In a religious treatise, *Cristianismi Restitutio,* Servetus proposes that Christianity return to its simple and primitive beginnings.

At one point, he describes the well-known threefold spirit of the human body, and concerning the "vital spirit" he says: "The vital spirit has, therefore, its source in the left ventricle of the heart, the lungs aiding most essentially in its production. It is a fine attenuated spirit, elaborated by the power of the heart, of a crimson color and fiery potency . . . it is engendered, as said, by the mingling of the inspired air with the more subtle portion of the blood which the right ventricle of the heart communicates to the left. This communication, however, does not take place through the septum, but by another more admirable contrivance, the blood being transmitted from the pulmonary artery to the pulmonary vein, by a lengthened passage through the lungs, in the course of which it is elaborated and becomes of a crimson color. Mingled with the inspired air in this passage and freed from the fuliginous vapours by the act of expiration, the mixture now being complete in every respect, and the blood become a fit dwelling place for the vital spirit, it is finally attracted by diastole and reaches the left ventricle of the heart."[17]

Thus the pulmonary circulation was described, and the controversial galenic pores were conveniently bypassed. Although some scholars credit Colombo and Cesalpino with this discovery,[18] Servetus' description is, according to Osler, the earliest known of the pulmonary circulation. During the same year that this paper was published (its main content clashing violently with Calvinist dogma), Servetus was burned at the stake as a heretic. He died a martyr, a devoted defender of truth and intellectual freedom.

Fabricius and Cesalpino. Three significant contributions to cardiology were recorded in Italy during the last half of the sixteenth century. Fabricius in 1574 described the valves in the veins. He thought that their purpose was to prevent distension of the vessels when blood flowed from the larger into the smaller veins. The valves were not needed in the arteries since the blood was in a constant state of ebb and flow. Colombo (1558) and Cesalpino (1593) proposed rudimentary theories of the circulation of the blood. Colombo visualized the systemic circulation but continued to believe that venous blood flow was centrifugal and originated in the liver. Cesalpino, a botanist and philosopher, dispelled the theory that the liver was the center of the movements of the blood and proposed a concept of "circulatio." This concept was, for the most part, theoretical and was not supported by the conclusive and elegant experiments that characterized William Harvey's later work.[18]

CARDIAC PATHOLOGY

Before turning to Harvey, the status of cardiac pathology in the renaissance should be examined. In a culture still permeated by superstition, disease was blamed on a variety of causes ranging from witchcraft to an imbalance of the humours. The first renaissance descriptions of cardiac lesions were made by Antonio Benivieni (1440?–1502) in Florence. His only surviving work, *De Abditis Causis Morborum*, reveals a pioneering insight into pathological changes in disease, hidden *(Abditis)* during life but revealed at necropsy. He was among the first to request permission of his patients' relatives to perform postmortem examinations.

A brief sketch of one of Benivieni's cases will illustrate his approach to the pathology of the heart: "A robber who had been hanged on a gibbet was cut down and resuscitated. He returned to crime and was recaptured, and this time more effectually hanged. 'Marvelling at the wickedness of this man,' says Benivieni, 'they (his associates) went to great pains to secure a necropsy and were surprised to find a heart stuffed with hair (pilis refertum).'"[19] This discovery, probably a case of fibrinous pericarditis, was attributed to the man's wickedness. Benivieni shows a characteristic attempt to correlate anatomic findings with a person's disposition in life. He also noted the unusual "polyps of the heart," mistaking a postmortem clot for a pathological lesion. These polyps were much discussed and debated until Senac first revealed their true nature three centuries later.

Other sixteenth century descriptions of cardiac lesions came from da Vinci, Vesalius, and Jean Fernel (1497-1558). Da Vinci described arteriosclerosis and considered it the cause of death when he saw that "the condition deprived the liver of blood and all the body of nourishment."[20] Vesalius was familiar with aneurysms of the aorta and even diagnosed the condition during life, to be confirmed subsequently at autopsy.[21] He is thought to have burned his manuscripts on pathology in one of his temperamental outbursts. Fernel, one of the greatest physicians of the renaissance, wrote a special section in his *Universa Medica* entitled "Pathologia," in which he attempted to classify diseases on an anatomic basis. He distinguished symptoms from signs and was the first to implicate syphilis as an etiologic basis of aneurysms.

Although he was an ardent humoralist who wrote lengthy discourses on the vital spirit, Fernel laid the groundwork for future pathologists like Baillie and Morgagni. Ignorance of the physiology of the circulation greatly retarded development of cardiac pathology. Only the intense revival of anatomy in this period allowed men to observe and record pathological lesions. Their meaning and interpretation awaited the insight and scientific acuity of Morgagni.

DISCOVERY OF CIRCULATION

William Harvey. These advances in cardiology culminated in the work of William Harvey. His treatise, *Exercitatio Anatomica De Motu Cordis et Sanguinis in Animalibus*, published in London in 1628, is a remarkable example of scientific curiosity and penetrating logic. During his early experiments, Harvey "was tempted to think, with Fracastorius, that the motion of the heart was only to be comprehended by God." But his ever-present faith in a design in nature, a heritage of the Greeks, was the basis of his persistent investigations; "Nature always does that which is best," he said. With precision and logic he disposed of the galenic "pores" when he said, " . . . if the blood could permeate the substance of the septum, or could be imbibed by the ventricles, what use would then be for the coronary artery and vein, branches of which proceed to the septum itself, to supply it with nourishment?"[22] He then set out, tactfully but decisively, to amalgamate past theories with present knowledge, "in order that what is true may be confirmed and what is false may be set right by dissection, multiplied experience, and accurate observation."

Harvey's crude but highly significant quantification of the cardiac output and his conclusion that "this amount of blood could be furnished in no other way than by making a circuit and returning" were the keystones to his concept of circulation. His many animal and human dissections, his simple yet classical experiments (for example, the demonstration of the direction of venous blood flow in the forearm), and his searching curiosity led Harvey to the following dramatic conclusion: "I frequently and seriously bethought me, and lay revolved in my mind, what might be the quantity of blood that was transmitted, in how short a time its passage might be effected, and the like; and not finding it possible that this (quantity) could be supplied by the juices of the ingested aliment without the veins on the one hand becoming drained, and the arteries on the other getting ruptured through the excessive charge of blood, unless the blood should somehow find its way from the arteries into the veins, and so return to the right side of the heart. I began to think that there might not be a motion, as it were, in a circle."[23]

Harvey's evidence was derived from observations of a variety of animals, a sound knowledge of the physiology of the fetus, and a clear visualization of the relevant anatomy. Particularly impressive throughout his treatise is Harvey's reluctance to admit to anything not supported by fact. Galen's experiments were a paean of nature; Harvey's experiments were "an ingenious trap to force nature into admitting the truth."

The renaissance man. The significance of Harvey's discovery to the history of medicine cannot be properly evaluated without considering his work in relation to preceding events and to the interacting influences of his environment. The prevailing philosophy of man and his place in the universe during the renaissance may be best characterized by Leonardo da Vinci's famous drawing demonstrating the proportions of the human body. The renaissance man was conceived as reigning supreme in the Great Chain of Being; he lived and worked confidently in a cosmos that had a definite design created by God. He was, indeed, as in da Vinci's picture, the center of his universe; he was an aspiring, questing being, willing to go to the extremes of damnation if he might only attain knowledge. His aspirations are epitomized in Marlowe's *The Tragical History of Doctor Faustus:*

> The end of Physik is our body's health,
> Why, Faustus, hast thou not attained that end?

Faustus is advised by the Evil Angel:

> Go forward, Faustus, in that famous art,
> Wherein all Nature's treasury is contained;
> Be thou on earth as Jove is in the sky,
> Lord and commander of these elements.[24]

The philosophy of circles. It is this particular concept of the world that found logical expression in the philosophy of circles. Copernicus based his cosmology on the revolution of the earth and planets around the sun, and, according to Walter Pagel,[25] Giordano Bruno entertained a concept of the circulation of the blood as a natural consequence of the philosophy of circles. Pagel declares that "Harvey regarded the circular motion of the blood as a microcosmic instance of a macrocosmic pattern."

This view is indeed consonant with similar contemporary views in which man is seen as existing in a metaphysical relationship to the universe. The renaissance man's self-consciousness of his place in the universe impelled him to relate himself to macrocosmic phenomena. This need was directly reflected in medical thinking. Bruno, in *De Rerum Principiis et Elementis et Causis*, states: "The spiritual life-force is effused from the heart into the whole body and (flows back) from the latter to the heart, as it were from the centre to the periphery and from the periphery to the centre, following the pattern of a circle. . . . "[26]

It is uncertain whether Bruno is referring to the "tidelike movement of the blood" described by Galen or whether he had access to Cesalpino's concepts of "circulatio." It is important to note, however, that this concept of blood flow occurred to Bruno as a natural result of his metaphysical views of the circle. The intrinsic wholeness of the circle made it an adaptable symbol to explain cosmology, philosophy, astronomy, and, in this case, physiology. To Bruno, the circulation of the blood was a cosmologic and philosophical truth. But in this view he shares with Harvey and Cesalpino a common influential source, Aristotle. Pagel continues: "The supremacy of the heart, its role as the centre from which the vital impulse steps out and to which it continually returns, its significance as the first to live and to build up the individual in generation — all these constituents of Aristotelian philosophical biology are set out as principles by Bruno." [27]

Harvey was educated in Aristotelian philosophy, and, like many of his colleagues of the past, he approached his work with the eye of a scientist and the mind of a philosopher. Harvey possessed the remarkable ability to examine natural phenomena on a factual as well as a conceptual basis. When the blood leaves the left ventricle, it courses through the arteries, propelled by the force of the contracting heart; it returns through the veins to the right ventricle to flow through the lungs and reach the left heart once more. Said Harvey, "Which motion we may be allowed to call circular, in the same way as Aristotle says that the air and the rain emulate the circular motion of the superior bodies; for the moist earth, warmed by the sun, evaporates; the vapours drawn upwards are condensed, and, descending in the form of rain, moisten the earth again; and by this arrangement are generations of living things produced; and in a like manner too are tempests and meteors engendered by the circular motion, and by the reproach and recession of the sun." [28]

The philosophy of circles was significant in Harvey's conceptualization of the circulation of the blood, for the circle was the symbol of the driving force of the cosmos at large (Copernicus, Galileo, Bruno), and it was thought to be operative also in the living microcosm.

The heart as a metaphor. The foregoing discussion suggests a concept that has not yet been discussed: the heart as a metaphor. Since the Greeks, the heart has connoted more than the center of life, the seat of the "vital spirit," and the generator of the "calor innatus." Through the ages, writers have heaped meaning upon meaning on this organ until it has become a symbol for joy, truth, sadness, hope, inspiration, expressing finally the entire gamut of human emotion. Sir Philip Sidney proclaims, "Look into your heart and write!" Shakespeare evokes every conceivable emotion from the heart (and in doing so reveals himself a galenist):

> The tide of blood in me
> Hath proudly flowed in vanity, till now;
> Now it doth turn, and ebb back to the sea,
> Where it shall mingle with the state of bloods,
> And flow thenceforth in formal majesty.[29]

The various figurative attributes accorded the heart grew out of the knowledge of its vital function and its imagined role in emotional expression.

Garrison, Sudhoff, and associates, claim that Harvey marks the beginning of a new epoch in medicine; others, including Cohn,[30] regard his achievement as the close of a period. "He stands, not in time, but in thought, midway between the ancient and modern world." Harvey, in a sense, summarizes the history of science; he brings a concept started by Aristotle to its logical conclusion. His adherence to a mechanistic view of the universe and his reliance upon experiment and observation mark him as a harbinger of the eighteenth century. It is not inconsistent to consider Harvey as both an end and a beginning. His achievements define a turning point in medical history; he links the classical and renaissance concepts with a modern attitude toward science and medicine.

SUMMARY

I have traced the chronicled advancements in cardiology through the renaissance to their culmination in the discovery of the principles of circulation by William Harvey. These advancements parallel the development of medicine during this time and, as has been pointed out, were an integral part of the renaissance "world view." The insistence on the revival of the classics during the renaissance proved to be both a stimulating and a retarding force in the history of medical progress. While the knowledge of the ancients was made available for all study, adherence to tradition and dogma often impeded progress. Not until the intellectual and creative spirit of the Greeks was employed empirically did medicine gain a true scientific impetus.

EPILOGUE

All aspects of our civilization, not only science and learning but also to a certain extent the arts, have become so highly specialized that it becomes increasingly difficult for modern man to emulate the genius of the renaissance man. The poet, astronomer, musician, priest, physician, and artist is indeed a "rare bird" today, and necessarily so, if one is to participate in a rapidly accelerating technology. The renaissance and its great men show how one discipline can become enriched and inspired by the application of other seemingly unrelated disciplines.

The study of history brings order, coherence, and vision to an oppressive mass of details and specialized skills. Ackerknecht,[31] in the introduction to *A Short History of Medicine* states, "In historical perspective, medicine loses its miraculous quality. It remains complex and fascinating, but it becomes an understandable phenomenon." Medical history is often viewed with mild disdain. Such theories as "the drinking of a lion's blood makes one lionhearted" seem incredible to the enlightened man. But anyone who recognizes that "the truth of today becomes the error of tomorrow" will be more sympathetic to the views propounded by medicine in the past. Hopefully, he will be better able to adopt a more critical and independent attitude toward his profession and thereby be more disposed to assimilate new ideas.

The writer wishes to thank Dr. J. W. C. Hagstrom, Mr. Milton Zizowitz, and Miss Judith Perry for their skillful advice and guidance in the composition of this essay.

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DISTURBED MENTAL BEHAVIOR may be the presenting symptom of hypothyroidism in adults in the absence of any other clinical manifestations of myxedema. The resemblance of myxedema psychosis to an acute schizophrenic break explains why such patients are often commited to psychiatric institutions. The nonspecific mental changes, including dementia, confusion, depression, hallucinations, ideas of persecution, and hyperactive delirium, may precede by weeks or months the first clinical evidence of thyroid abnormality. A good neurological evaluation can furnish a clue to the diagnosis of the condition by revealing symptoms and signs commonly encountered in hypothyroidism, including acroparesthesias, pseudomyotonic reflexes, nerve deafness, and slight incoordination. A low voltage alpha activity may be noted on electroencephalography. Adequate thyroid replacement brings complete or partial recovery. Return to the euthyroid state is marked by recovery in electroencephalographic as well as mental and neurological abnormalities. The psychosis in patients showing poor response to treatment may be unrelated to myxedema. Psychosis associated with hypothyroidism was seen in 4 patients. Treatment with desiccated thyroid produced complete relief in 2 patients within a few weeks, while the other 2 showed partial recovery.

JOHN LOGOTHETIS, M.D., University of Minnesota, Minneapolis, and Hastings State Hospital, Minn. J. nerv. ment. Dis. 136:561-568, 1963.

Internal Iliac Artery Ligation

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LIGATION of the internal iliac artery can be lifesaving in the presence of severe gynecologic bleeding. Originally employed as a final heroic measure, it is used now to prevent serious hemorrhage and control mild bleeding. As it becomes familiar to the operator, the operation is utilized increasingly.

TECHNIQUE

The technique is relatively simple. There are 2 approaches to the internal iliac artery: intraperitoneal and extraperitoneal. The intraperitoneal approach is preferable for several reasons: There is one incision, the gynecologist is familiar with the route, and the ovarian arteries can be ligated if necessary and the bleeding site found. Extraperitoneal approach involves 2 skin incisions and retroperitoneal dissection. This is advantageous only when there is a cogent reason to avoid opening the abdomen. Sometimes the arteries can best be mobilized extraperitoneally because of tissue reaction.

The internal iliac artery must be identified. Palpate the external iliac artery as it passes along the side of the pelvis and trace it to its bifurcation with the internal iliac artery. Access to the internal iliac artery without ureteral injury is gained by opening the peritoneum 2 cm. distal to the bifurcation and just inferior to the external iliac artery (figure 1). Under direct vision, the incision is enlarged to 6 or 7 cm. The ureter is inferior to the peritoneal incision and usually is attached to the medial leaf of peritoneum (figure 2). After the peritoneum is opened, access is gained to the external, internal, and common iliac arteries. Mobilization of the internal iliac artery close to the bifurcation is desirable. It is more safely done by blunt, rather than sharp, dissection. Lifting the artery from its bed with a Babcock clamp is helpful (figure 3). A No. 1 silk suture is used to ligate the artery close to the bifurcation (figure 4). Minor bleeding almost always originates from vessels in the cut edge of the peritoneum and is controlled by the sutures when the peritoneum is closed. Major hemorrhage comes only from great vessel injury.

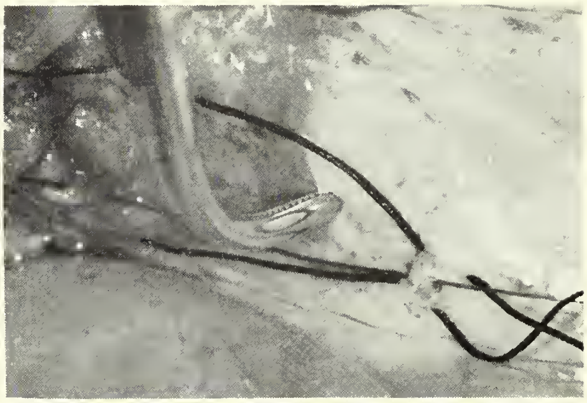

Fig. 1. Peritoneum of the right lateral pelvic wall is opened where clamp is attached. Black thread overlies iliac vessels. Grey thread overlies ureter.

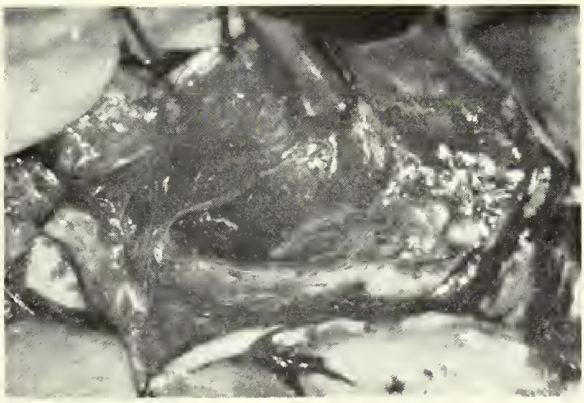

Fig. 2. The ureter stays with the medial leaf of peritoneum.

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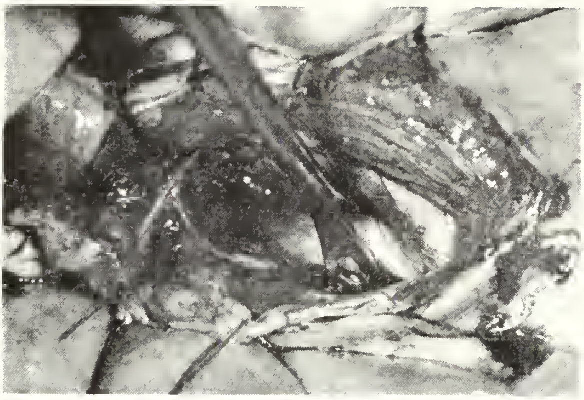

Fig. 3. Lifting the artery from its bed with a Babcock clamp aids in dissection.

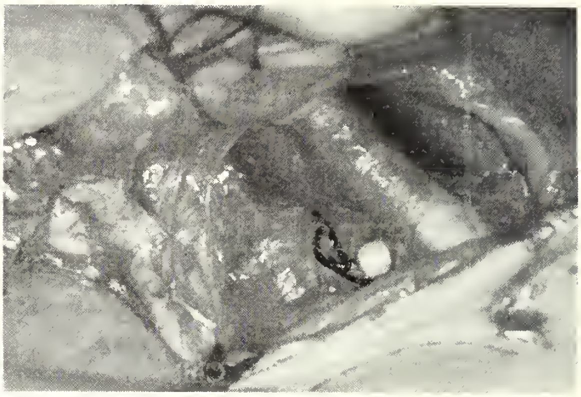

Fig. 4. The artery is ligated with silk suture, close to the bifurcation.

PATIENTS

Since 1942, the internal iliac artery was ligated in 96 patients from 3 university hospitals. In 1961, Siegel and Mengert[1] reported results from the first 60 patients. Indications for performance have changed since then. The operation is employed with increasing frequency: 17 patients in twelve years, 32 patients in six years, and 53 patients in four years (projected figures for 1963) (figure 5). Moreover, the operation is utilized with increasing frequency in patients with benign disease. Vaginal hemorrhage from advanced cervical carcinoma motivated ligation in half of the first 60 patients (table 1). The indication remains valid but now is infrequent since the number of patients with far-advanced cervical carcinoma on our service has decreased. In the last 36 patients more than half of the ligations were done to control hemorrhage during or following operation. The procedure is effective for arterial bleeding at the vaginal apex and in the broad ligament. It is not effective for venous ooze anywhere in the pelvis. Moreover, it will not control bleeding from bladder muscularis because of rich anastomotic circulation. With massive hematoma of the broad ligament from ruptured uterus, operation is simplified if both iliacs are ligated immediately after the abdomen is opened. The operator is thereby relieved of the necessity of attempting hemostasis in an area seriously distorted by the hematoma. With increasing knowledge and confidence in the ease and simplicity of performance, we have dared to ligate the internal iliacs for demonstration and teaching purposes. In fact, each senior resident is taught how and actually ligates at least 1 internal iliac artery. Among the 96 patients there was little morbidity and no death directly attributed to the operation. The internal iliac artery was injured once during mobilization and was ligated on both sides of the injury. The external iliac vein was injured twice and the internal iliac vein once. All 3 venous injuries were repaired by simple suturing.

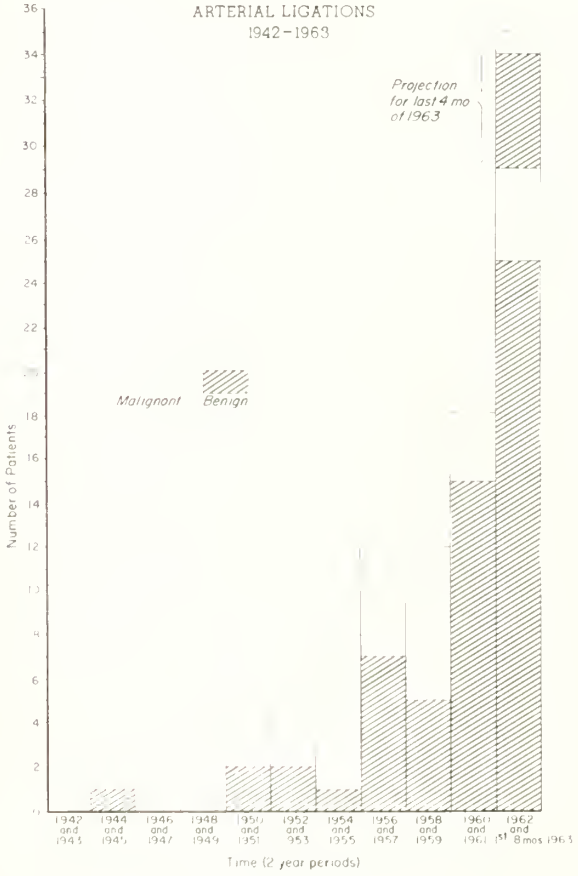

Fig. 5. Iliac ligation is employed with increasing frequency.

Collateral circulation from the external iliac, femoral, ovarian, inferior mesenteric, middle sacral, and lumbar arteries is so great that pulsation of the internal iliac distal to the tie is often noted after ligation. Even when both internal

TABLE 1

CHANGING INDICATIONS FOR ARTERIAL LIGATIONS

	1942–1961 (60 patients)	*1961–1963 (36 patients)*
Hemorrhage		
Spontaneous	32	0
Operative	9	19
Postoperative	13	6
Prophylactic	4	3
Teaching	2	8

TABLE 2

ARTERIAL LIGATION IN 96 PATIENTS

		Internal iliac Both (62)	*Internal iliac* One (34)
Ovarian arteries	Both (57)	32*	25
	One (20)	16	4
	None (19)	14	5

*Note: In 32 patients both internal iliac and both ovarian arteries were ligated.

iliacs and both ovarian arteries were ligated, there was no evidence of compromised blood supply in 32 patients (table 2). In fact, evidence is accumulating of normal ovarian and uterine function after ligation. An immediately puerperal patient with both ovarian and both internal iliac arteries ligated elsewhere has had 2 subsequent menstrual periods. We hope to receive further reports.* A report also was received from Japan of a patient who became pregnant after ligation of both internal iliac arteries. At the last report she was in the last trimester and the pregnancy seemed normal.

SUMMARY

Internal iliac artery ligation for control of pelvic hemorrhage can be lifesaving. Indications generally deserve to be expanded rather than to reserve the operation for critical situations. Among 96 patients there was little morbidity and no death directly attributed to the operation.

The James F. Hanna Memorial Lecture presented at the 25th Annual Meeting of the North Dakota Society of Obstetrics and Gynecology, September 20, 1963, Fargo, North Dakota.

*Telephone call received from patient's physician. The patient, now about 6 months postpartum, is menstruating regularly on a 28- to 31-day cycle. Endometrium recovered on the 24th day of a 31-day cycle exhibited only suggestion of the secretory phase. The doctor feels he cannot testify to ovulation on the basis of his findings.

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PATIENTS WITH cyst or sinus of the thyroglossal duct may remain asymptomatic, but once infection occurs, surgical intervention is necessary. The key to eradication of the disease is removal of the midportion of the hyoid bone, since the tract passes through or close to it. A transverse incision is made directly over the cyst or sinus process, the cyst is isolated and separated from surrounding tissue, and the tract is dissected from between the sternohyoid muscles. The hyoid bone is divided, leaving the midsection attached to the tract. The left index finger is inserted into the patient's mouth to identify the foramen cecum, which is used as a landmark in coring out the tongue muscle around the tract. Dissection is halted just short of the mucosa at the foramen, and the process is ligated. Postoperative complications are few, and the cure rate is excellent. Of 367 patients treated surgically and followed for five years, 96% were free of thyroglossal-duct symptoms.

EDWARD S. JUDD, M.D., Mayo Clinic and Foundation, Rochester, Minn. Surg. Clin. N. Amer. 43: 1023-1032, 1963.

Subpleural Lipoma

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Lipomas are among the most frequently encountered benign tumors, but they are not commonly found within the thorax. A subpleural location is even more rare, since the majority of intrathoracic lipomas occur within the mediastinum.[1,2] The following 2 cases of subpleural lipoma have recently been encountered at the Cincinnati General Hospital.

CASE REPORTS

Case 1. An asymptomatic 44-year-old Negro male was discovered to have a 2 by 3 cm. density in the left anterior thorax on a routine chest film (Fig. 1). On careful questioning, he described a vague discomfort of the chest wall in the area of the lesion. The lesion was thought to be intrapulmonary. There were no changes in the underlying bone. Laminagraphy failed to reveal calcific deposits or fat density. At thoracotomy, a lipoma was found between the endothoracic fascia and parietal pleura on the anterior chest wall. The underlying lung was normal.

Case 2. A 4-year-old white male with chickenpox was found to have a 3 by 6 cm. density in the right hemithorax on a routine chest radiograph (Fig. 2). There were no symptoms attributable to this finding. The lesion was thought to be extrapleural because it was very sharply demarcated from the adjacent lung and its superior and inferior borders gradually tapered to merge with the chest wall. There were no rib changes. Attempts at aspiration were unproductive but did result in a small pneumothorax which further demonstrated the extrapulmonary location of the mass (Fig. 3). At thoracotomy a lipoma was found lying between the endothoracic fascia and the parietal pleura, displacing the latter into the thoracic cavity.

INCIDENCE AND CLINICAL FEATURES

A review of the literature[1-6] reveals that 82 cases of intrathoracic lipoma have been reported, including the present cases. These tumors may lie entirely within the thorax or may extend either into the neck or through an intercostal space. The generally accepted classification of intrathoracic lipomas is an anatomical one.[1,2,6] This classification, together with the distribution of the 82 reported cases, is shown in the table. Including the 8 cases of transmural tumors in which the intrathoracic component was subpleural, a total of only 23 subpleural lipomas have been reported.

Subpleural lipomas have been found in all age groups, ranging from 15 months to 72 years.[1,5] Fifteen cases have occurred in males and 7 in females. In 1 instance the sex was not given. Most subpleural lipomas are from 3 to 10 cm. in greatest dimension, but occasionally they may fill the entire hemithorax. Of the 23 reported cases, only 4 were found beneath the diaphragmatic

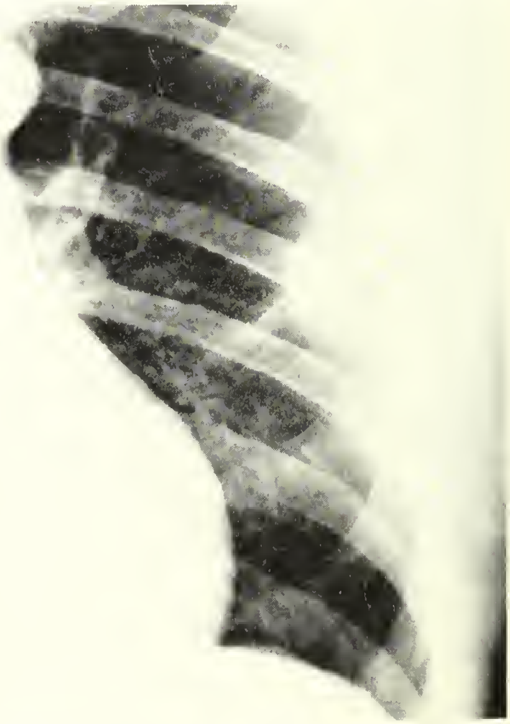

Fig. 1. Case 1. A 2 by 3 cm. density is located laterally in left hemithorax. Because lesion is not seen in profile, its extrapleural location cannot be appreciated.

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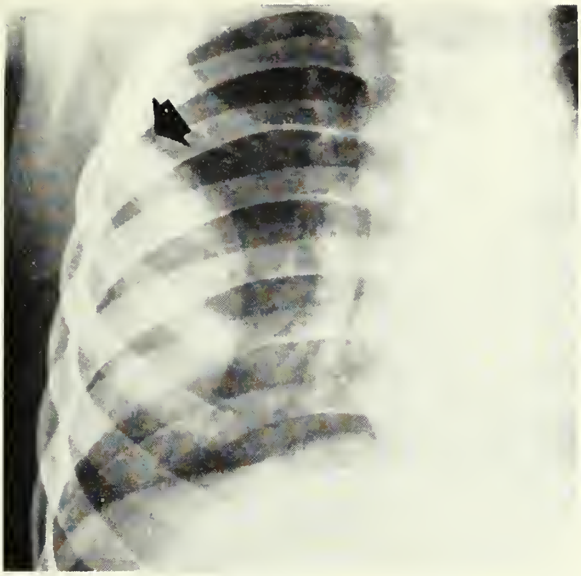

Fig. 2. Case 2. Note tapering border at junction of lesion with chest wall (arrow). This tapering is characteristic of extrapleural lesions. (Reproduced with permission of both author and publisher from: Felson, B. F.: Fundamentals of Chest Roentgenology, W. B. Saunders Co., Philadelphia, 1960, p. 207.)

pleura while 19 occurred beneath the costal pleura.

Except for the presence of a palpable mass in the transmural group, most cases are asymptomatic. Occasionally, chest pain near the site of the intrathoracic tumor may be present. If the tumor reaches gigantic proportions, cardiorespiratory symptoms may be produced because of compression of adjacent structures.[1]

Pathologically, subpleural lipomas are similar to lipomas in other locations. They are composed of lobules of normal adult fat and may or may not have a capsule. These lipomas are to be distinguished from brown fatty tumors, the so-called hibernomas which are thought to be vestiges of the hibernating glands of animals. Only 1 case of subpleural hibernoma has been reported.[7]

ROENTGENOGRAPHIC FINDINGS

Roentgenographically, a subpleural lipoma usually presents as a sharply circumscribed mass bulging into the lung from the chest wall or diaphragm. Although mediastinal lipomas have been noted to change shape with changes in position, this finding has not been described in subpleural lipomas. Occasionally, in transmural tumors, there is pressure erosion or separation of the underlying ribs.[5]

Surprisingly, it has not been possible to recognize fat density in the tumor, even with laminagraphs. Apparently when the tumor is bordered by the contrasting air density of lung tissue, it is extremely difficult to distinguish its fat density from water density. Heuer[1] stated that, unlike other intrathoracic tumors, the margins of a lipoma suggested translucency when compared to the dense central portion of the shadow. However, this phenomenon may occur in tumors of water density as well. A more helpful sign has been that the entire shadow appears insufficiently dense for its size. Occasionally, attempts at aspiration of suspected fluid have produced fatty droplets which reveal the true nature of the tumor.

The extrapleural location of the tumor can be appreciated by close observation of the junction of the mass with the chest wall. Because the pleura is pushed forward into the lung, the border of the lesion tapers gradually to merge with the chest wall, this junction often presenting a concave border toward the lung.[8] To demonstrate this sign, the junction of the mass and the chest wall must be seen in profile, a feat most easily accomplished with spot films at fluoroscopy. In case 1, because this junction was not shown tangentially, the extrapleural location of the mass was not appreciated. At the time of fluoroscopy, it will also be found that on respira-

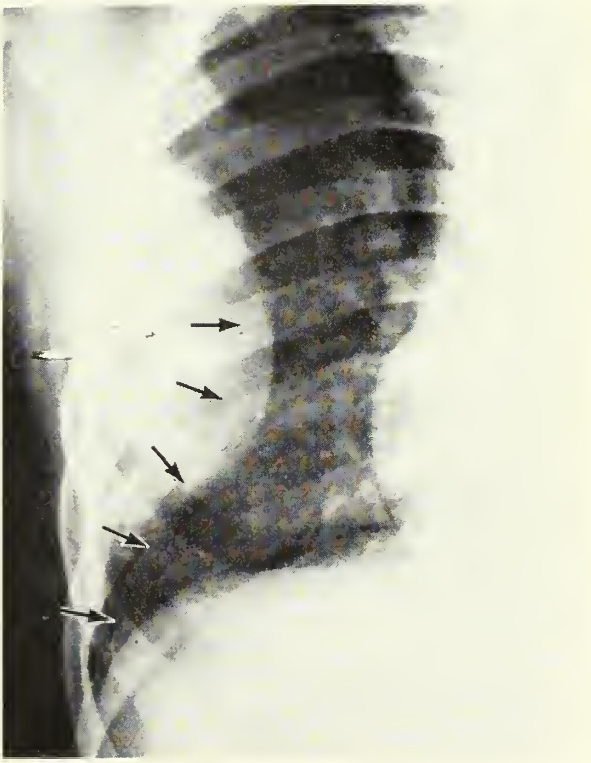

Fig. 3. Case 2. Pneumothorax has separated lung (arrows) from lesion establishing its extrapulmonary location. There are two artifacts overlying the mass.

CLASSIFICATION* AND DISTRIBUTION OF 82 REPORTED CASES OF INTRATHORACIC LIPOMA

	Number of cases reported
1. Entirely intrathoracic lipomas: lying completely within thoracic cage	
a. Mediastinal	46
b. Subpleural	15
2. Hourglass lipomas: with both intrathoracic and extrathoracic components	
a. Cervicomediastinal: intrathoracic portion lying in mediastinum with an extension into neck	8
b. Transmural: intrathoracic portion (mediastinal or subpleural) connected with extrathoracic component through intercostal space	
(1) mediastinal	5
(2) subpleural	8
Total	82

*Classification does not include hibernomas, lipothymomas, liposarcomas, and endobronchial and intrapulmonary lipomas.

tion the mass will move with the ribs rather than with the pulmonary vessels.

Diagnostic pneumothorax has been employed to demonstrate that the mass does not lie in the lung. Similarly, diagnostic pneumoperitoneum has been used to demonstrate that a mass lying on the diaphragm does not represent an abdominal structure which has herniated through the diaphragm.

DIFFERENTIAL DIAGNOSIS

There are many other conditions which can mimic a subpleural lipoma. These entities can sometimes be distinguished by associated findings. An extrapleural hematoma may be accompanied by rib fracture and there will be a history of trauma. Loculated pleural fluid will often be associated with thickening in other areas of the pleural cavity. Pleural metastasis and mesothelioma are often multiple and are frequently associated with pleural effusion. Superior sulcus tumor and an inflammatory or neoplastic rib lesion are usually distinguished by the extensive bone changes accompanying these conditions. Neurogenic tumors may also produce rib erosion, sometimes of minor degree. However, if a subpleural lipoma is associated with rib erosion, an extrathoracic component will be present. Finally, localized deposits of normal fat attached to the midportion of the ribs may be found in the pleural space.[9] These pleural fat pads may be indistinguishable radiologically from subpleural lipoma.

If the lipoma lies beneath the diaphragmatic pleura, a tumor of the diaphragm and a herniated abdominal viscus must also be considered. It will usually be impossible to differentiate the former. The latter generally occurs at specific sites (for example, foramina of Bochdalek or Morgagni) and, with artificial pneumoperitonium, will usually be found to communicate with the abdomen.

However formidable the above list, a subpleural lipmoa may be suspected preoperatively. Once the extrapleural location of the lesion is determined and there is absence of marked rib change and other apparent disease, the suspicion of insufficient density of the lesion for its size should suggest the diagnosis. If there is a soft, lobulated, extrathoracic mass overlying an intrathoracic lesion, an hourglass lipoma is almost certain.

SUMMARY

Subpleural lipomas are uncommon tumors which are usually asymptomatic. Occasionally they extend through an intercostal space and expand extrathoracically in an hourglass manner. Occurring beneath either the diaphragmatic or costal pleura, these tumors should be considered in the differential diagnosis of extrapleural masses.

I am indebted to Dr. Benjamin Felson for his encouragement and help in the preparation of this manuscript.

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The Application of Recent Advances in Methodology to Cardiovascular Diagnosis

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ADVANCES IN CARDIAC SURGERY in recent years have stimulated a great deal of activity in the field of cardiovascular diagnosis. In addition to permitting the identification of various cardiac lesions, perhaps the most significant result has been an increasing ability to quantitate their severity. This quantitative approach has become essential for a proper decision in the selection of patients for operation.

In this presentation, some of the methods which are useful in diagnosis of congenital heart defects will be described, the usefulness of left-heart catheterization in the diagnosis of aortic stenosis will be shown, and, finally, some considerations concerning the diastolic pressure in the left ventricle will be discussed.

INTRACARDIAC SHUNTS

The introduction of a cardiac catheter into the chambers of the right heart and analysis of blood samples for oxygen content usually permit the localization of a left-to-right shunt. However, changing metabolism in the patient and the difficulty in obtaining representative mixed venous blood samples often prohibit accurate measurement of shunt flow. When an inert foreign gas is inhaled by a normal subject, gas in solution passes into the pulmonary veins and through the left heart into the systemic arterial bed. Because of rapid diffusion into tissues, the venous concentration of the gas rises much more slowly than the arterial concentration. This wide arteriovenous difference which exists shortly after the onset of inhalation is the basis for the application of foreign gas techniques in the evaluation of left-to-right shunts.

The gas krypton^{85} has several properties that make it useful for clinical studies. First, since it is radioactive, a blood sample containing krypton^{85} may be placed immediately into a Geiger-Müller tube attached to a count rate meter and its concentration in blood determined accurately within one or two minutes. Secondly, krypton^{85} has a short biological half-life, being eliminated through the lungs within a few minutes, and therefore produces negligible radiation dosage to the patient. Finally, it may be stored for long periods of time without loss of potency. During the initial thirty seconds of inhalation of the gas by a healthy subject the arterial concentration reaches a high level while the venous concentration remains low. When blood containing krypton^{85} is shunted left-to-right through an atrial septal defect while blood samples are drawn from artery and right heart during the first thirty seconds of inhalation, the samples from the pulmonary artery, right ventricle, and right atrium are highly radioactive while those from the vena cava are not. By determining the most proximal chamber in which a positive test is obtained it is thus possible to localize the site of the left-to-right shunt to the pulmonary artery, right ventricle, or right atrium. The ratio of Kr^{85} concentration in the right-heart chamber to that in the artery was calculated in a large series of patients in whom shunts were subsequently proved at operation. It was found that when the krypton activity in the chamber was less than 13% of that in the artery, a left-to-right shunt could be excluded.[1] Blood flow through experimental left-to-right shunts in animals was measured with flowmeters. The magnitude of the ratio of radioactivity in right-heart blood to arterial blood correlated well with the size of the left-to-right shunt. The krypton test thus may be used to determine the ratio of pulmonary to systemic blood flow in clinical studies.

Another method employing radioactive material is useful in screening patients for left-to-right shunts. A large scintillation detector is placed over the lung field. A precordial dilution curve is recorded following the intravenous in-

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jection of a small amount of the gamma-emitting isotope, I^{131}-labeled iodopyracet (Diodrast).[2] In a healthy individual, this curve shows a rapid descent of the initial two-thirds of the descending limb. In patients with left-to-right shunts, the recirculating isotope causes a prolongation of the curve's downslope. This procedure also is helpful in documenting closure of defects after operation.

LEFT-HEART STUDIES

Left-heart catheterization studies have assumed great importance in the accurate diagnosis of acquired heart lesions. With the transseptal technique[3] a cardiac catheter is passed into the right atrium by way of a saphenous vein, and a curved needle is advanced through the catheter and positioned against the interatrial septum. The septum is then punctured, and the catheter is passed over the needle into the left atrium and into the left ventricle.

With aortic stenosis, a pressure gradient exists between the left ventricle and the aorta. The stenosis may occur in the supravalvular region, at the aortic valve, immediately beneath the valve, or in the muscle of the outflow tract of the left ventricle. Because of these anatomic possibilities and because the proper selection of patients for operation requires exact knowledge of the degree to which mechanical factors are limiting cardiac function, left-heart studies have become an essential part of preoperative evaluation. The simple measurement of a pressure gradient between the left ventricle and aorta may not provide an accurate assessment of the degree of valve narrowing, and the measurement of flow is also desirable. A square root relationship exists between blood flow and pressure gradient across a stenotic orifice; when flow doubles, the pressure gradient is quadrupled. The pressure gradient alone may thus be misleading when cardiac output is high, or in aortic regurgitation when forward flow across the valve with each beat consists of forward flow from the left atrium plus the regurgitant volume.

Localization of the site of obstruction may be achieved by selective angiocardiography. Supravalvular narrowing and the membrane of discrete subvalvular stenosis can be readily recognized. With hypertrophic subaortic stenosis, obstruction in the outflow tract of the left ventricle during systole is shown, with complete or partial relief of the narrowing during diastole. With this type of obstruction, produced when the hypertrophied muscle contracts and narrows the outflow tract, the degree of obstruction appears to be augmented when the force of contraction is increased. This phenomenon explains the unusual behavior of the aortic pressure pulse during the beat following a ventricular extrasystole in the presence of hypertrophic stenosis.[4] Normally, or in the presence of valvular aortic stenosis, increased filling of the ventricle during the compensatory pause following an extrasystole prompts a more forceful ejection of a larger stroke volume. The aortic pressure pulse thus widens. In hypertrophic subaortic stenosis, the aortic pressure pulse narrows in the beat following an extrasystole. This is due, presumably, to increased narrowing of the outflow tract coincident with the more forceful contraction, resulting in a smaller stroke volume; the reaction is peculiar to this type of obstruction. This phenomenon may be useful in bedside diagnosis of idiopathic hypertrophic subaortic stenosis. If a premature contraction occurs, the pulse following an extrasystole is less forceful.

Another manifestation of the variable degree of obstruction associated with the hypertrophic type of lesion is a marked augmentation of the pressure gradient across the left ventricular outflow tract following the administration of isoproterenol (Isuprel). This drug may be used to provide a provocative test in patients exhibiting little or no gradient at the time of study and is similar to the augmentation of gradient sometimes seen during and following exercise in these patients.[5] The increase in gradient is presumably secondary to the marked increase in contractile force of the heart induced by isoproterenol, resulting in increased narrowing of the outflow tract during systole.

Elevation of the left ventricular end-diastolic pressure tracing is often a feature of the left ventricular pressure tracing in patients with aortic stenosis. The end-diastolic pressure represents the pressure existing in the ventricle at its maximum diastolic volume before the onset of ventricular contraction. In patients in normal sinus rhythm, atrial contraction contributes significantly to the end-diastolic ventricular pressure; in those with aortic stenosis the additional pressure generated in the ventricle may be striking. Since it appears that a ventricle requires a certain pressure at end-diastole to produce a given amount of work per beat, the importance of this atrial contribution is apparent. For example, if atrial fibrillation suddenly occurred and the large atrial *a* wave disappeared, it would be necessary for the mean pressure in the left atrium to increase to the level of the previous end-diastolic pressure to maintain ventricular performance, and symptoms of pulmonary congestion would almost certainly result.

DETECTION OF MYOCARDIAL DISEASE

A major problem in cardiovascular diagnosis, particularly in preoperative evaluation, is detection of myocardial disease. A high diastolic pressure in the ventricle may signify heart failure in many instances, while a normal diastolic pressure may indicate the absence of failure; however, with the large number of catheterization studies being performed the limitations of attaching such significance to the end-diastolic pressure should be appreciated. The shape of ventricular function curve as defined by Sarnoff and Berglund may be considered.[6] Ventricular end-diastolic pressure is plotted on the abscissa and work performed per stroke on the ordinate. The curve obtained experimentally in a normal heart rises steeply, then flattens. Lower levels of diastolic pressure may be associated with large changes in myocardial performance and thus end-diastolic pressure is not a sensitive index of heart function when the diastolic pressure is in the normal or high normal range. The importance of this concept of the function curve is emphasized by instances when myocardial function is probably normal but end-diastolic pressure elevated. This can occur in hypervolemia, with an increased flow burden imposed by a left-to-right shunt, or with the increased pressure burden of aortic stenosis. It is difficult to term heart failure these elevations in ventricular end-diastolic pressure associated with increased cardiac work; it would seem that under such circumstances the ventricle has simply moved upon a relatively normal ventricular function curve and is producing an appropriate amount of increased work from the elevated end-diastolic pressure. A second important consideration in interpreting the end-diastolic pressure in the ventricle involves the pressure volume relationship. When increasing end-diastolic volume is plotted on the abscissa and end-diastolic pressure on the ordinate, the shape of this curve is such that at low pressures large volume changes can occur with only minimal alterations in the end-diastolic pressure. This curve illustrates that at low or only slightly elevated end-diastolic pressure values, the pressure by itself is insensitive as an index of ventricular volume. When the ventricular wall is stiffened, the pressure-volume curve is shifted to the left, that is, smaller changes in volume are associated with larger changes in pressure. A normal end-diastolic volume can then be achieved only by the development of an elevated end-diastolic pressure. It would appear inappropriate to term heart failure those elevations of end-diastolic pressure induced by stiffening of the wall, as in fibroelastosis, since contraction of the ventricle may be relatively normal.

The shape of the ventricular function and pressure-volume curves illustrate that low end-diastolic pressures may not be a reliable index of either ventricular performance or volume and that a high diastolic pressure may occur with relatively normal heart function. Thus, to place too great a reliance on the diastolic pressure in the ventricle in establishing the presence or absence of failure is probably oversimplification.[7] Methods are now available for accurate characterization of many heart defects, both congenital and acquired, but detection and quantitation of myocardial dysfunction remains a challenging problem.

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Dr. Larson was born on a farm near Swan Lake, Turner County, South Dakota, January 4, 1896, the son of Danish immigrants who came to Dakota territory with their parents in the late 1860s. He attended Swan Lake public school No. 44 and finished the eighth grade there. His decision to study medicine had apparently been reached while he was in the seventh grade for when he went into high school it was with the expectation that he would prepare himself for medical school. After high school he entered Union College at Lincoln, Nebraska, where he took his premedical education; he then entered the University of Nebraska, graduating with an M.D. degree in 1921. Earlier he had served briefly in the army in World War I. Doctor Larson's two-year internship was at the Douglas County Hospital in Omaha. Later he spent a year at Bismarck, North Dakota, as an assistant to a surgeon, then went to Underwood, North Dakota, and spent eight years in general practice. He resumed his education at the University of Pennsylvania Postgraduate School, took a residency in surgery, and received his Master's degree in that specialty from the University of Pennsylvania. After serving a year as assistant surgeon in Trinity Hospital, Nashville, Tennessee, he came to Jamestown, North Dakota, in 1938, entered into association with Dr. Sorkness and Dr. DePuy, and has been there ever since.

In 1926 Dr. Larson married Grace Fraser of Fargo, North Dakota. They have two sons, Ernest Jr., who studied medicine and is now an ophthalmologist in private practice in Edina, a suburb of Minneapolis, and Robert, who was graduated from college and business graduate school and is now assistant trust officer at the Northwestern National Bank in Minneapolis.

Dr. Larson is a member of several professional societies including the American Medical Association and the American College of Surgeons. He has been active in his district and state societies for many years and is at present president of the North Dakota State Medical Association.

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Book Reviews . . .

Intestinal Absorption

by T. HASTINGS WILSON, *263 pp., W. B. Saunders Co., Philadelphia, 1962. $11*

This is a splendid, useful, and scholarly book. For years it has been a marvel to the reviewer that physiologists have shown so little interest in the mechanics and the chemistry of the small bowel, in spite of the fact that the small bowel is the principal organ of digestion and the all-important organ of absorption of food.

Interestingly, Dr. Wilson begins by pointing out that the small bowel has a surface area of some 3,300 sq. cm. The folds of Kerckring multiply this by 3, the villi by 30, and the microvilli by 600. This gives an absorption area of about 2,000,000 sq. cm.

On page 4, Dr. Wilson shows details of the columnar absorbing cell as it is revealed by the electron microscope. All through his book, Dr. Wilson uses such information derived from electronic microscopy.

As he says, advances in our knowledge of absorption come spasmodically, usually because some new chemical technique enables research workers to get a better idea of just what happens to a substance to enable it to get through the absorptive membrane.

This is a book for the able chemist. In the several chapters, the author discusses the mode of absorption of sugars, amino acids, fluids and electrolytes, triglycerides, cholesterol, bile salts and phospholipids, nucleic acid derivatives, proteins, vitamins, and drugs.

Along the way, there are excellent bibliographies. Dr. Wilson is to be congratulated on a splendid achievement.

WALTER C. ALVAREZ, M.D.
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The Biochemical Diagnosis of Heart Disease

by CLARENCE M. AGRESS *and* HARLEY M. ESTRIN, *173 pp., ill., Charles C Thomas, Springfield, Ill., 1963. $7.75*

The diagnosis of myocardial infarction has always been difficult and any objective diagnostic aids which may support the clinical judgment have always been welcome. The first two-thirds of this book is devoted to a review of enzymes, mainly SGOT, LDH, SGPT, in the diagnosis of myocardial injury. This monograph presents a well-written, clear presentation of the background of enzyme studies and a good review of their clinical application. The author quotes liberally from the literature in establishing the proper place for the enzyme studies.

As this is a review, most of the facts are well-known, but it is convenient to find such concise and well-organized material. The conclusions of the book are attained as a consensus of many investigators. Reading the book confirms the clinical impression we have received that the transaminase (SGOT) is probably the most reliable indicator of myocardial injury and that if this test is negative, it is improbable that actual infarction has occurred. There are many other conditions which may produce an elevation of the transaminase so that "false-positive" tests must always be considered.

The last third of the book "Other Biochemical Tests in Heart Disease" tries to cover so much material in so little space that it is little more than a tabulation of the laboratory tests that might be used in the many types of heart disease. One is, however, exposed briefly to a wide variety of laboratory procedures with the added backing of good bibliographical references.

Appendixes in the book include the technique of the SGOT test, a brief discussion of fluid and electrolytes including concise definitions of terms involved, and a table of normal values of various blood and urine constituents.

The book is well-printed as is true of the Charles C Thomas monograph series. While it is not extensive enough to be considered as a reference work, I feel it is of particular value to the practicing physician who needs information and does not wish to delve too deeply into the intracacies of biochemistry.

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Strecker's Fundamentals of Psychiatry

by MANUEL M. PEARSON, *6th ed., 274 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $6.75*

A classic textbook in psychiatry, originally written by the famous Dr. Edward A. Strecker of the University of Pennsylvania, is now in its sixth edition, revised by one of Dr. Strecker's students, Dr. Manuel M. Pearson. Dr. Pearson continues to fulfill Dr. Strecker's original purpose, "to record concisely the general principles of psychiatry, to be used as a solid foundation by the medical student and the general practitioner." This book of 250 pages may lack detail for the psychiatrist, but its clarity and organization help to make psychiatry more easily understood—without oversimplifying—to the nonpsychiatric practitioner.

A total approach to medicine and psychiatry is followed throughout the text. Repeatedly stressed is the fact that the health of the individual is a total situation and that physical and emotional health must both be given full consideration and are closely intertwined.

By giving well-known statistics (one-half of all hospital beds and one-third of general practice are psychiatric) at the beginning the author stresses the importance of psychiatry in medicine. The portions of the book dealing with specific mental illnesses follow the standard classification of mental disease. They give excellent descriptions of psychiatric illnesses as well as pertinent ideas on etiology, diagnosis, and treatment. I noted that the section on schizophrenia, labeled as "the most serious disease menace of modern civilization," was particularly good. The sections on psychoneurosis and psychophysiological disorders are relevant to all fields of medicine. The chapters on personality disorders, pathological drinking, and general psychodynamics are also of high quality.

Particularly recommended for nonpsychiatric practitioners are chapters on history taking and interviewing techniques. Doctors are urged to drop the traditional authoritative manner and let the patient tell his own story. The importance of the doctor-patient relationship in the therapy of illness is effectively pointed out.

A chapter on psychopharmacology, not found in former editions, is a good guide to the use of the new tranquilizers and antidepressants. There are also brief de-

(Continued on page 16A)

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(Continued from page 14A)

scriptions of the more drastic therapies, such as shock therapy. A chapter on psychotherapy should be helpful to any practitioner of medicine.

Dr. Pearson adds a chapter on psychiatry in war which is engrossing and well written. Also included in this edition is an 8-page glossary of psychiatric terms which a nonpsychiatric practitioner will find helpful.

In general, the text is well organized, clear, and logical and provides both the psychiatrist and the practitioner with an adequate source of reference in their attempt to provide for their patients' total health.

LESLIE CAPLAN, M.D.
Minneapolis

May's Manual of the Diseases of the Eye

edited by JAMES H. ALLEN, *23rd ed., 382 pp., ill., Williams & Wilkins Co., Baltimore, 1963. $9.25*

That this book has achieved its 23rd edition is an indication of its value to the users originally designated in the first edition—"the student and the general practitioner." In preparing this latest edition, Dr. Allen has carefully adhered to Dr. May's policy of "omitting excessive detail, extensive discussion and lengthy accounts of theories and rare conditions." This policy results in a manual packed with essential information arranged in concise, outline style. It is easy to read, comprehensively indexed, and clearly illustrated. The middle signature comprises 32 beautiful and accurate colored plates.

The text has been completely revised in the light of new developments in the field as well as in correlative fields. Chapter 26, Ocular Manifestations of General Diseases, will be of particular value because of the relationship of ocular signs and symptoms which frequently are the first manifestations of diseases of the cardiovascular, endocrine, and nervous systems. Because of the current interest in congenital and developmental anomalies, these also have been touched upon. The book does, indeed, open wide vistas to the general practitioner who is interested in holistic medicine.

An added practical device is the appendix which lists the ocular requirements of the various grades of service in the armed forces. This appendix will answer the questions often asked by the patient regarding his military service eye requirements.

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Dr. Allen is to be congratulated on his ability to include essentials, exclude the highly specialized, and compress and yet vitalize the readability of a quick, ready reference manual. The book is highly recommended as the ocular bible of the student and general practitioner.

E. D. PERRIN, M.D.
Bismarck

External Infections of the Eye: Bacterial, Viral, and Mycotic

by HELENA BIANTOVSKAYA FEDUKOWICZ, *228 pp., ill., Appleton-Century-Crofts, New York City, 1963. $16.50*

This is a comprehensive text covering all aspects of the external infections of the eye. The book is well written and presents the material in a clear and concise manner. The discussion of each entity includes the clinical findings of the disease as it may manifest itself systemically, the findings in the eye, and the laboratory studies. There is at least 1 color plate of each clinical entity with the necessary accompanying plates for the laboratory picture of the disease.

I feel that this is a nice contribution to the literature in this field, and I think the book would be of value not only to ophthalmologists but also to general practitioners and others in medicine who have contact with and a responsibility for treatment of the external diseases of the eye.

ERNEST J. LARSON, JR., M.D.
Minneapolis

Broken Long Bone: Its Bionomics and Man

by ROBERT T. MC ELVENNY, *292 pp., ill., Charles C Thomas, Springfield, Ill., 1963. $11.50*

Dr. McElvenny has written a book which portrays his own thought and philosophy, not necessarily that of most orthopedic surgeons. Exactly whom the author had in mind to instruct with this book is open to some question. The medical student will not be sufficiently wise to separate the wheat from the chaff and neither will the interns nor even perhaps the orthopedic resident. I doubt that the trainee in orthopedic surgery, however, will be led far astray by the author's verbosity as he wanders through seemingly interminable philosophical thoughts and phrases concerning well-known orthopedic concepts and problems.

In some parts of the book, good teaching material is presented; for example, the first part deals with the use of tourniquets, traction apparatus, and the use of plaster of paris. The book gives a good deal of space to diagrams illustrating the author's concepts. Many good suggestions for operative procedures are also thus illustrated. Most orthopedic surgeons, however, would shudder at many of the author's teachings: for example, his high recommendation of the use of "bone glue" (Ostamer) in treatment of ununited fractures.

This book provides a rather pleasant and often amusing interlude in light reading for the trained orthopedic surgeon. For those not so well grounded, its value should be questioned.

JOHN H. MOE, M.D.
Minneapolis

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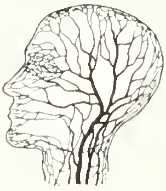

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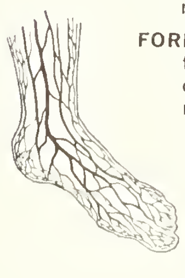

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News Briefs . . .

North Dakota

DR. LEONARD J. PROCHASKA was elected chief of staff and president of the executive board of St. Michael's Hospital, Grand Forks, in January. He succeeds Dr. Frank A. Hill. Dr. Prochaska, twelfth man to head the hospital staff, is a graduate of the Marquette University School of Medicine. He interned and completed ophthalmology residency at Minneapolis General Hospital. He is a diplomate of the American Academy of Ophthalmology, a fellow of the American College of Surgeons, and a member of the Grand Forks District Medical Society. Dr. Prochaska has been on the medical staff of St. Michael's for the past ten years.

° ° ° °

DR. H. A. WHEELER is the first chief of staff of the new Mandan Hospital. Other staff officer appointments were Dr. A. E. Hetzler, vice-president, and Dr. A. F. DuMais, secretary.

° ° ° °

DR. J. BAHAMONDE is associated with Dr. A. A. Curiskis at a new clinic in Elgin. Dr. Bahamonde was previously associated with Dr. Curiskis for a number of years before leaving Elgin for a surgical residency in Atlanta, Ga., and service in the U.S. Army.

° ° ° °

DR. FRANK N. LOW, an expert in electron microscopy, has been named to the anatomy professorship at the University of North Dakota established by the Louis W. and Maud Hill Family Foundation. Dr. Low is professor of anatomy at Louisiana State University. The professorship is the third Hill research professorship awarded to the University of North Dakota and provides a grant of $75,000 for a period of five years beginning next April. Dr. Low obtained his M.D. from the University of Buffalo in 1933 and a Ph.D. in microscopic anatomy from Cornell University in 1936. He taught anatomy at the Universities of North Carolina, Maryland, and West Virginia and Johns Hopkins University.

° ° ° °

DR. H. L. REICHERT has succeeded Dr. Norman B. Ordahl as chief of staff of St. Joseph's Hospital in Dickinson. Other new officers are Drs. A. C. Sawchuk, vice-president, and W. C. Hanewald, secretary.

° ° ° °

DR. RUSSELL L. ODEGARD, who trained as a mechanical engineer before going into medicine, has joined the Great Plains Clinic in Minot. A general practitioner and a member of the American Academy of General Practice, he previously practiced in Hatton, N.D. Dr. Odegard began his medical training after a ten-year engineering career in industry, local government, and teaching. He earned his M.D. at the University of Kansas, Kansas City, in 1959.

° ° ° °

DR. R. S. LYLE HILLMAN, general surgeon, recently completed nearly three years with the U.S. Navy, first as an intern and then as a flight surgeon. A graduate of the University of Washington School of Medicine, he is now a member of the staff at Johnson Clinic in Rugby.

° ° ° °

DR. DELANO M. PFEIFLE has joined the staff of the Dakota Clinic in Fargo after completing special training at the

Mayo Clinic, Rochester, Minn. He is a member of the department of internal medicine at the Dakota Clinic. Dr. Pfeifle received his M.D. from Northwestern University in 1959. After internship at Evanston Hospital, Evanston, Ill., he took a fellowship in internal medicine at the Mayo Clinic.

Minnesota

DR. RICHARD OLSON has joined Dr. G. T. Schimelpfenig and Dr. G. E. Nelson at the Valley Medical Center, Chaska. Drs. Olson and Nelson also will serve residents of nearby Jordan with an office in that community. Dr. Olson, a native of Willmar, received his M.D. degree from the University of Minnesota and interned at the San Diego County General Hospital, Calif., before military service.

* * * *

DR. JOHN BAUMAN, a native of Canada, has joined Dr. Clifford Stiles, in practice at Foley. Dr. Bauman received his M.D. degree from the University of Manitoba, Winnipeg, and interned at St. Boniface Hospital in St. Boniface, Manitoba, for training in surgery and pediatrics. He has been a general practitioner in Hallock since July 1961.

* * * *

DR. RUSSELL THOMPSON, ophthalmologic surgeon, has established a private practice in Willmar. A native of Hutchinson, Dr. Thompson received his M.D. degree from the University of Minnesota and was a general practitioner in Cosmos from 1955 to 1959. He then practiced in Minneapolis for three years while taking graduate work in ophthalmology.

* * * *

DR. EVA JANE LARSON, the only woman doctor on the Mounds Park Hospital staff, has been named chief of staff, to succeed her brother-in-law, Dr. Kenneth Nimlos. A general practitioner, she has been associated with the hospital since 1939. Dr. Larson's interest in medicine was inspired by her father, Dr. Edward W. Ostergren of Little Canada, a surgeon on the Mounds View Hospital staff for 54 years. Her sister, Dr. Lenore Nimlos, also is a general practitioner; her daughter, June, is a second year premedical student at the University of Minnesota; her son, Bert, a high school student, works part-time in the hospital medical record room. The new chief of staff is married to a St. Paul dentist.

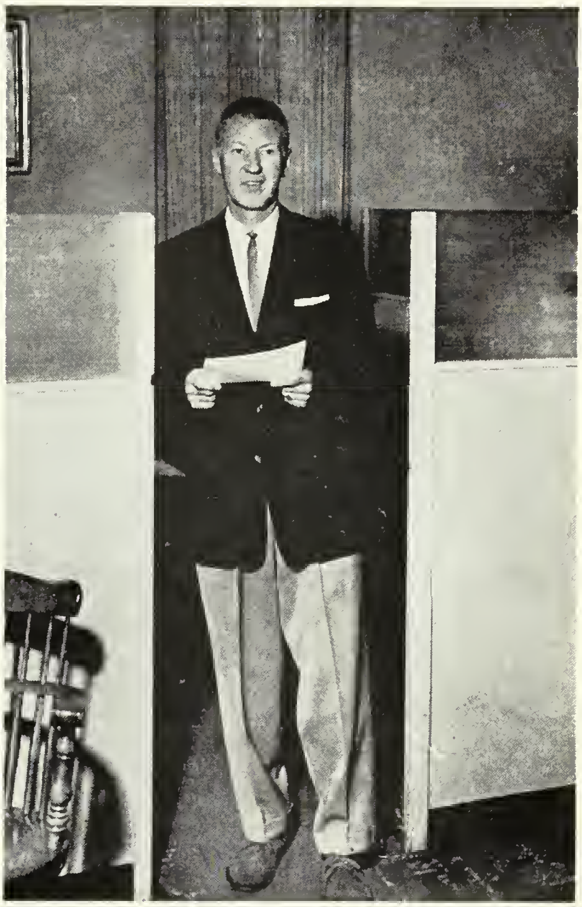
* * * *

DR. JOHN M. BERKMAN, member of the Mayo Clinic staff in Rochester for thirty-four years, has retired from the clinic. With a particular interest in gastroenterology, he carried out extensive investigation in anorexia nervosa. He was president of the Zumbro Valley Medical Society in 1948 and is a member of state and national medical associations, the Minnesota Society of Internal Medicine, and the American Gastroenterological Association. He received his M.D. at the State University of Iowa in 1926 and became a consultant in medicine at the clinic in 1931. He advanced to associate professor in the Mayo Foundation, University of Minnesota, in 1948. Dr. Berkman was certified in 1937 by the American Board of Internal Medicine.

* * * *

DR. JOHN V. THOMAS has been installed chief of staff at Miller Memorial Hospital in Duluth. He succeeds Dr. Dwight Hoeg, now a member of the hospital executive

(Continued on page 20A)



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NEWS BRIEFS

(Continued from page 19A)

committee. Dr. W. J. Brooker is the new vice-chief of staff. Dr. F. W. Conley was elected to the executive committee and Dr. Carl Eklund secretary-treasurer of the medical staff.

* * *

DR. ALAN R. JOHNSON, a 1960 graduate of the University of Minnesota Medical School, has become affiliated with the Windom Clinic after serving as Naval Flight Surgeon with the 3rd Marine Air Wing, El Toro, Calif. He interned at Ancker Hospital, St. Paul, before entering the Navy.

South Dakota

DR. WILBERT HOHM has announced plans to join the Tschetter-Hohm Medical Clinic in Huron. He recently finished residency in internal medicine and proctology at the Mayo Clinic, Rochester, Minn.

Deaths . . .

ROY E. SWANSON—1890-1963

Minneapolis lost another of its beloved physicians when Dr. Roy E. Swanson died from a myocardial infarction November 15. He had undergone major surgery in July and was recovering from this when his death occurred.

Dr. Roy, as he was affectionately called by his patients and colleagues, was born September 18, 1890, in the little town of St. Thomas, North Dakota. At a very early age his family moved to Fosston, Minnesota; it was here that he spent most of his youth. During his early teens his family moved to Seattle, Washington, but he remained with friends in order to graduate from Fosston High School. He received a scholarship to the University of North Dakota where he took his premedical training. Upon completing this, he transferred to the University of Minnesota Medical School, graduating high in his class and being elected to Alpha Omega Alpha, honorary medical fraternity.

Immediately upon graduation Dr. Swanson began general practice in Alexandria, Minnesota. It was not long, however, before the United States entered World War I, and Dr. Swanson left his practice to become a major in the Army Medical Corps serving in France and Belgium. After the armistice he returned to Alexandria where he met and married Kathrine Jacobson.

In 1922 he left his general practice and accepted a teaching fellowship in obstetrics and gynecology at the University of Minnesota under Jennings Litzenberg. In 1925 he received his Ph.D., and although he joined Dr. Rae T. LaVake in private practice, he continued his teaching at the medical school as a clinical assistant professor. Throughout his lifetime teaching remained one of his great loves, and many of today's well-known practitioners in the specialty remember him fondly as one of their favorite instructors.

Dr. Swanson remained active in his specialty until his retirement in 1960. During his career in medicine he served as president of both Fairview and Abbott Hospital staffs. He also was a former president of the Minne-

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apolis Academy of Medicine. He was a diplomate of the American Board of Obstetrics and Gynecology, a charter member of the American College of Obstetrics and Gynecology, and a longtime member of the Minnesota Academy of Medicine.

Dr. Roy's interests were many and varied. He was an active sportsman up to the time of his death, hunting and fishing being his favorites. He spent much of his summer leisure time on board his cruiser on the St. Croix and took several long trips down the Mississippi on his beloved boat. The remainder of his spare time he devoted to study, astronomy and mathematics rating high on his list of interests.

Dr. Swanson is survived by his widow; a son, Roy Jr. of Minneapolis; a daughter, Mrs. Eleanor Busch of Washington, D. C.; and eight grandchildren.

RICHARD R. FLIEHR, M.D.

* * * *

DR. WALTER A. CARLEY, St. Paul psychiatrist, died December 26 at the age of 52. A lifelong St. Paul resident, he received his M.D. degree from the University of Minnesota in 1937. At the time of his death, Dr. Carley was consulting psychiatrist at the Minnesota State Prison and at Ancker Hospital and Gillette State Hospital for Crippled Children in St. Paul. He was a professor of psychiatry at the University of Minnesota, a trustee of the Hamm Psychiatric Clinic, and was on the staffs of Charles T. Miller, St. Johns, St. Joseph's, St. Luke's, Bethesda Lutheran, and Mounds Park Hospitals. Dr. Carley was a member of many professional organizations including the Minnesota Society of Psychiatry and Neurology and the American Medical Association, and he was a fellow of the American Psychiatric Association.

* * * *

DR. HOFF DANIEL GOOD, 70, a general practitioner in the Minneapolis area since 1927, died January 17 at the University of Wisconsin Hospitals, Madison. Dr. Good received his M.D. degree from the University of Minnesota in 1925 and interned at Swedish Hospital in Minneapolis. His medical practice was in suburban Columbia Heights. Dr. Good was a member of the St. Andrew's and Fairview Hospital staffs, the Hennepin County Medical Society, the American Medical Association, and the American Academy of General Practice. He was active in church music during the 1930s and later developed an interest in the manufacture of mobile homes.

* * * *

DR. MYRON M. WEAVER, 62, died December 25 in Schenectady, N.Y. He was assistant dean of the University of Minnesota College of Medical Sciences from 1944 to 1949. At his death, Dr. Weaver was dean of the Union University Graduate School in Schenectady. He received his M.D. degree from Rush Medical College, Chicago, and graduate degrees from the University of Chicago. From 1932 to 1934, Dr. Weaver was associate professor of health and physical education and director of the student health service at Carleton College, Northfield, Minn.

* * * *

DR. JAY M. COOK, general practitioner in Staples, Minn., for forty years, died January 11. He was born in South Dakota, received his M.D. degree from Creighton University in Omaha, and began his Staples practice in 1923. In 1938 he was instrumental in organizing the

(Continued on page 22A)

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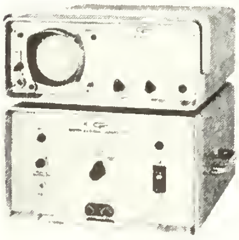

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(Continued from page 21A)

local Lions Club and was chairman of its sight-saving fund. Dr. Cook was health officer for Staples and Todd County coroner for many years.

° ° ° °

DR. HARRY M. GUILFORD, Minneapolis city health officer from 1915 to 1921, died in Madison, Wis., December 27 at 91 years of age. A Minneapolis native, Dr. Guilford was the Wisconsin state epidemiologist from 1921 until his retirement in 1948. He was graduated from the University of Minnesota Medical School in 1898.

° ° ° °

DR. RUDOLPH E. JOHNSON died at age 62 in Mankato, Minn., January 6. He had been in poor health for some time. He specialized in the treatment of pulmonary diseases and his last medical position was medical director of the Minnesota State Sanatorium at Ah-gwah-ching. He retired ten years ago.

° ° ° °

DR. CLARENCE S. BOSSERT, an active community and church worker even after his retirement five years ago, died in Mora, Minn., on January 21 at 90 years of age. He practiced medicine in Mora for more than fifty years. He served 4 terms as mayor and was a member of the fire department and school board. Dr. Bossert was graduated from the George Washington University School of Medicine, Washington, D. C., in 1908.

° ° ° °

DR. GORDON E. STRATE, 61, died at St. Johns Hospital, St. Paul, December 24 of a heart ailment. An ophthalmologist, Dr. Strate was a lifelong resident of St. Paul. He received his M.D. at the University of Minnesota in 1927 and was a member of the American Academy of Ophthalmology and Otolaryngology, Association for Research in Ophthalmology, International College of Surgeons, American College of Surgeons, and had been an instructor in ophthalmology at the University of Minnesota.

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DR. ARTHUR U. DESJARDINS, authority in therapeutic radiology and longtime staff member at the Mayo Clinic in Rochester, died of coronary artery disease January 15 in Damariscotta, Maine, at 79 years of age. Dr. Desjardins was head of the section of therapeutic radiology from 1920 to 1948. He retired and moved to Maine in 1949. He joined the clinic after graduation from the University of Pennsylvania School of Medicine, a time as head of the Fairfield Tuberculosis Sanatorium in Maine, and medical service in France during World War I. He rose to full professor in radiology in the Mayo Foundation, University of Minnesota, in 1936. He was a prolific writer in the field of therapeutic radiology, contributing more than 100 papers to the medical literature—some in French, which he spoke fluently. He was an early worker in color photography. He was a member of the Council on Physical Medicine of the American Medical Association for a number of years, and a member of the Council on Industrial Health. Dr. Desjardins was a fellow of the American College of Physicians and member of the Southern Minnesota Medical Association, Clinical Congress of Internal Medicine, Radiological Society of North America, American Medical Association, American Roentgen Ray Society, American Radium Society, and an honorary member of the Roentgen Society of England. In 1950, he received the certificate of merit from the University of Minnesota for his long service as a member of the university faculty.

COMING *in* *May*

Articles and features to be found in the next issue of THE JOURNAL-LANCET

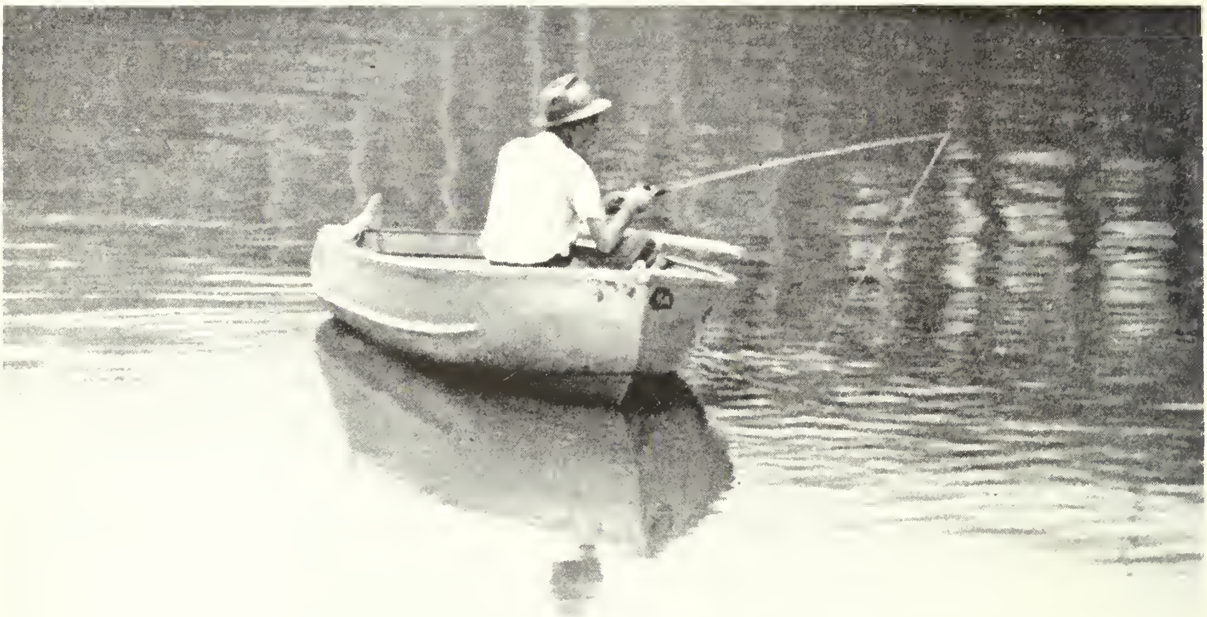
A special series of clinical articles from the Fargo Clinic, Fargo, North Dakota, will begin in the May issue of THE JOURNAL-LANCET. The editors are pleased to announce that this series, guest-edited by L. G. Pray, M.D., continues the practice which this journal has carried out over many years of featuring papers from outstanding medical centers or series of articles in specialized areas of medicine.

With a staff of 38 physicians, all of whom are board-certified or eligible for certification by their specialty boards, the Fargo Clinic is a private partnership. It was established in 1919, and, with a steady growth in staff and physical facilities, the clinic now sees about 600 patients each day.

Dr. Pray writes that there has always been a close professional and physical relationship with Fargo's St. Luke's Hospital, an institution of 240 beds with a soon-to-be-completed 80-bed neuropsychiatric wing.

Dr. Pray has written the first paper for this issue on "Fibrocystic Disease of the Pancreas." Papers to follow in subsequent issues will include: "A Dermatologic Hobnob," by Dr. W. L. Macaulay; "Cerebral Astrocytoma Metastatic to Cervical Lymph Nodes," by Dr. James H. Coffey; "Ear, Nose, and Throat for the General Practitioner," by Dr. Duane W. Nagle; and "Clinical Significance of the Absent Umbilical Artery," by Drs. Victor J. Magary, John S. Gillam, G. Alfred Dodds, and M. H. Poindexter.

The May issue will also contain the quarterly Section on Pain and Distress, including a special article by Edward A. Banner, M.D., Mayo Clinic, on "Pelvic Pain of Gynecologic Origin."



The discharged
mental patient . . .
and Thorazine®
brand of chlorpromazine

"The average practitioner is quite capable of handling the vast majority of ex-institutionalized patients by regulation of medication, reassurance, manipulation of the environment where necessary, and . . . other technics." Kline, N.S.: Postgrad. Med. 27:620 (May) 1960.

The family physician must often assume responsibility for the discharged mental patient. Thorazine (chlorpromazine, SK&F) can be a valuable adjunct to the continuing care of this patient, because it helps prevent relapses by insulating him from the impact of stressful experiences. For successful rehabilitation and prevention of rehospitalization, however, the former mental patient—and often his family—also needs the guidance and counsel of his physician.

Many physicians are surprised by the high doses of Thorazine (chlorpromazine, SK&F) used in patients released to their care from mental hospitals. This surprise may be expressed by a drastic reduction in dosage "to play it safe"—with serious consequences for the patient.

The successful maintenance of former mental patients requires adequate, often "high" dosage, and often for prolonged periods of time. Fortunately, these dosages do not mean greater risks for the patient. On the contrary, there is much less risk of serious side effects once a patient has become gradually accustomed to Thorazine (chlorpromazine, SK&F)—*regardless of dosage*—over a period of a few months. Continuing therapy is almost always well tolerated, and is essential to most patients' continued well-being.

Brief Summary: Thorazine (chlorpromazine, SK&F) has been successfully used for 10 years in the treatment of mental and emotional disturbances, and has proven highly effective in the maintenance therapy of former hospitalized mental patients. *Principal side effects:* The most frequently encountered side effect is transitory drowsiness. Other occasional side effects include: dry mouth, nasal congestion, constipation, miosis, dermatological reactions, photosensitivity, jaundice, hypotension, increased appetite and weight; very rarely, mydriasis, agranulocytosis, extrapyramidal symptoms. *Contraindications:* Comatose states or in the presence of excessive amounts of C.N.S. depressants.

For complete prescribing information, please see *PDR* or available literature.

SK&F *Smith Kline & French Laboratories*

The Journal-Lancet

SERVING THE MEDICAL PROFESSION OF MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA, AND MONTANA

Proctology in the United States

A Short History

WILLIAM C. BERNSTEIN, M.D.
St. Paul

PROCTOLOGY, that branch of medicine which concerns itself with diseases of the colon and rectum, is one of the oldest medical specialties in the United States. The first recognized specialist in this country was Dr. Joseph MacDowell Mathews of Louisville, Kentucky. He had been a general practitioner since graduating from the medical department of the University of Louisville in 1867. In 1877, after attempting to obtain graduate instruction in rectal diseases in this country, he went to England and enrolled as a graduate student in St. Mark's Hospital for the Cure of Fistula, Cancer, and Other Diseases of the Rectum. St. Mark's Hospital had been founded in 1830 and had been staffed by a group of excellent general surgeons, notably Salmon, Goodsall, the Allinghams, Lockhart-Mummery, and Ernest Miles. These physicians developed sound diagnostic principles and advanced surgical methods in the treatment of diseases of the colon and rectum. Mathews returned to the United States and limited his practice to proctology. He not only brought back the latest and best ideas for the treatment of medical and surgical diseases of the rectum and colon but he also returned with material for intelligent propaganda necessary to counteract the influence of charlatans engaged in the management of rectal diseases. Itinerant charlatans who specialized in rectal disorders were prevalent in the United States at the turn of the century. One was Dr. Milton W. Mitchell who was born in Maysville, Kentucky, in 1834 and was graduated from the University of Kentucky in 1871. Soon he began to treat hemorrhoids by injecting solutions, the main ingredient of which was phenol. Dr. Mitchell was widely acclaimed in some circles and condemned in others. He kept his formula for injecting hemorrhoids secret and sold territory rights for its use. He practiced in Kentucky, Missouri, and Kansas until his death in Avilla, Kansas, in 1887. It is true that credit for the injection treatment of hemorrhoids should be given to Dr. Mitchell, but the methods which he employed to exploit it must be condemned. It was Dr. Mitchell and his followers whom Dr. Mathews fought after he returned from London.

Dr. Mathews published many papers dealing with diseases of the colon and rectum and was one of the first physicians in this country to stress the importance of a thorough rectal examination. Before the introduction of the illuminated proctoscope, he introduced his hand into the rectum of the anesthetized patient to palpate the rectosigmoid area. In 1893 he published the first orthodox textbook on proctology and entitled it "Treatise on Diseases of the Rectum, Anus and Sigmoid Flexure."

Dr. Mathews was well-recognized for his leadership in his chosen field. In 1899 he was instru-

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mental in forming the American Proctologic Society in Columbus, Ohio, and he became its first president. Also in 1899, he was elected to the presidency of the American Medical Association, an achievement which attested to his high standing among his colleagues of the American medical profession.

Endoscopes for viewing the interior of the rectum and lower portion of the colon were not available when Mathews began his work in proctology. However, several specula for viewing the interior of the anal canal and lower rectum were being used. In 1895, Dr. Howard Kelly of Baltimore introduced his open sigmoidoscope. This instrument was the forerunner of our present day instruments, and in 1915, Dr. Frank C. Yeomans of New York described a closed, electrically lighted scope with an inflating adjustment.

By the mid-twenties most of the larger cities in the United States had, among the medical profession, well-recognized ethical physicians who were limiting their professional activities to proctology. Many were self-trained or had received their training in some type of preceptorship arrangement. Formal graduate training programs in proctology were initiated during this period. In 1922 a Department of Proctology was established at the Mayo Clinic with Dr. Louis A. Buie in charge. Shortly thereafter fellowships in proctology became available at the Mayo Clinic. Short courses in proctology lasting from one week to several months were provided in medical centers such as the Polyclinic in New York, Hirschman's Clinic in Detroit, Cook County Hospital in Chicago, and others.

In 1935, the American Board of Proctology was incorporated. It was approved by the Advisory Board for Medical Specialties in 1949 and graduate training in proctology soon established proctology as a specialty comparable to other approved surgical specialties. At the present time a candidate must have had a minimum of three years of formal training in general surgery and two years training in colon and rectal surgery to become eligible for certification in colon and rectal surgery. The original certifying board was called the American Board of Proctology. In 1962 the name was changed to the American Board of Colon and Rectal Surgery.

In the history of the development of proctology as a recognized specialty, Minnesota has played an important role. Dr. Walter A. Fansler, a graduate of Johns Hopkins Medical School in 1914, arrived in Minneapolis in 1915 to become associated with Dr. Frederick Dunsmoor in general surgery. Soon he became keenly interestd in proctology and in 1916 started an outpatient diagnostic rectal clinic in the University of Minnesota Dispensary, then located in the basement of Millard Hall. Dr. Fansler limited his practice to proctology and became the first Director of the Division of Proctology in the Department of Surgery at the University of Minnesota Medical School.

Dr. Louis A. Buie graduated from the University of Maryland Medical School in 1915 and in 1917 came to the Mayo Clinic as a fellow in surgery. In 1919 he began his work in proctology at the Mayo Clinic by developing a diagnostic clinic on a very modest scale. The demand for his services increased rapidly and in 1922 a Department of Proctology was established and fellowships in proctology became available from the Mayo Foundation for Medical Education and Research and from the University of Minnesota. Without doubt, more young men have been trained in proctology by Dr. Buie than by anyone in this field. In 1919 he perfected an electrically lighted sigmoidoscope which has stood the test of time and is still one of the most useful instruments of its kind. Dr. Buie has written several textbooks on proctology which are recognized throughout the world.

At the University of Minnesota Medical School a residency program in colon and rectal diseases was established in 1950, and one physician is graduated from this program every two years. In addition, short courses in proctology are provided at the Center for Continuation Study for a full week each year. These courses have been extremely popular and now attract physicians from all parts of the United States.

Specialists in colon and rectal diseases are now members of the staffs of many teaching institutions and medical clinics throughout the United States. The period of training is comparable to and often exceeds that of other surgical specialists. Much progress has been made and the challenge of the future is being met by energetic and dedicated physicians.

The Biennial Mathews Oration, delivered by Dr. Curtice Rosser of Dallas, Texas, in 1946, is the source of the information concerning Dr. Joseph MacDowell Mathews and has been used with the permission of the author.

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Cancer of the Colon and Rectum and Cancer Detection

BOSTON
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OWEN H. WANGENSTEEN, M.D.
Minneapolis

CANCER OF THE LARGE BOWEL, including rectum and colon, takes a larger toll of life than does cancer of any other organ. In 1959, approximately 40,000 Americans lost their lives from cancer of the colon and rectum. In fact, since 1940, in the United States, cancer of the large bowel has led the list among deaths from cancer of any one organ. Cancer of the stomach during these same years has declined gradually and significantly. It would appear, therefore, that subtle environmental factors are operating which influence the occurrence of alimentary tract cancer.

At the University of Minnesota, the Cancer Detection Center, approved and sponsored by the Minnesota Division of the American Cancer Society as well as the Cancer Council of the Minnesota State Medical Society, has been in operation since March 1948. Up until December 1, 1963, 12,130 patients have been seen there, divided fairly equally between men and women over the age of 45 years. Cancer detection has proved helpful especially with reference to the following types of cancer: skin, cervix uteri, rectum, and breast.[1,2] Early detection of cancer of the lung and the stomach must await the development of techniques which will permit their recognition while cancer is still a mucosal lesion. Invasion of the musculature of a tubular segment of the alimentary tract, let alone penetration of the cancer to the organ surface as well as lymph node metastases, vitiate the prognosis very materially.

Cancer in its initial stages is asymptomatic. Twenty years ago, this clinic had the experience of performing subtotal distal gastrectomies for a few patients with diffuse mucosal gastric cancers without lymph node involvement. Histological evidence of residual cancer was uncovered in paraffin-fixed sections not detected in the frozen sections obtained at operation. The latent interval before reassertion of symptoms in these patients was in the area of twenty to twenty-four months.[3] In other words, two years probably marks the asymptomatic interval of patients with visceral cancers. Even so, patients neglect symptoms such as the appearance of blood in the stool, gas pains, or diarrhea.

Theodore Storm, the author of *Immensee*, who died of a gastric cancer in 1888, wrote a poem shortly before his death entitled, "Beginn des Endes" (Beginning of the End), a short poem of 3 stanzas. In the first, the author complains to himself he has a pain; in the second verse, he reassures himself, "It is nothing"; in the third he admits, "It is too late." This, unfortunately, is still too often the situation in many visceral cancers. This circumstance serves to emphasize how important it is to provide opportunities for an annual physical examination, taking special cognizance of the possibility of uncovering silent occult cancers in our population beginning at age 45.

My colleague, Dr. Victor A. Gilbertsen, Director of the Cancer Detection Center, has observed that an annual proctosigmoidoscopic examination with destruction or excision of small adenomatous polyps has affected very materially the number of patients needing radical excision for cancer of the rectum. Over the years of operation of the clinic, it has been the policy of a succession of the Cancer Detection Center's directors, including Drs. David State, Claude Hitchcock, Brannon Hubbard, Albert Sullivan, Donald Shahon, and Victor Gilbertsen, to suggest excision or fulguration of small adenomatous rectal polyps. During these years, on recheck examinations, 9 patients were found to have histological adenocarcinomas in small rectal lesions.[4] In only 2 instances was a radical operation done; one patient died of pneumonia postoperatively. The remaining patients survive. Seven were treated by local excision. It is still too early to predict what the eventual outcome will be, but the finding of small lesions suscep-

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tible of local excision through an operating proctoscope serves to emphasize the importance of the annual proctosigmoidoscopic examination. Only time will indicate whether these lesions were strictly mucosal and that local excision was adequate to provide an enduring cure.

Unfortunately, cancer detection in the colon is not as effective in the recognition of mucosal cancers as is endoscopy of the rectum. Some Swedish radiographers, notably Welin of Lund, (1955), feel they can recognize small colic lesions, no more than 5 mm. in diameter, by the aid of air contrast studies. Certainly this is not yet the case in America, though precision techniques of examination of the colon are coming into vogue, however difficult or tedious they are. The circumstance that 70% of the 40,000 deaths from cancer of the large bowel concerns the colon serves also to emphasize how important it is to devise reliable methods for earlier detection of colic cancer.

Many of us feel we have spent our professional lives on the wrong side of the cancer woodpile. All surgeons who affect an interest in cancer yearn to get over to the other side where the green cases are appearing in rather large numbers each year in our population. Experience is beginning to accumulate to suggest that for the breast, cervix uteri, the rectum, and the skin, well-organized cancer detection efforts will succeed in recognizing cancers in these organs sufficiently early to improve the prognosis greatly over what current therapy can provide on the basis of symptomatic clinical cancer.

In studying the five-year survivals in successive groups of patients admitted to the University of Minnesota Medical Center over the past twenty years, Dr. Gilbertsen finds there has been definite improvement in the overall accomplishment with both cancer of the colon and the rectum in this clinic during this period of time. In the colon, the overall accomplishment has improved largely because of the enlargement of the primary operation for cancer of the colon, which began here about 1944.[5] As every surgeon comes to know, the opportunity for enlarging the operation in rectal cancer beyond the conventional abdominoperineal procedure is unalterably limited by the anatomical boundaries of the pelvic walls. Hence the importance of timely diagnosis.

Until we know enough about cancer to prevent its occurrence, we must continue to improve methods of management of patients who come with cancer diagnosed on the basis of clinical findings. It is in patients in whom asymptomatic cancers are uncovered that the survival rate will be best. Determined steps need to be taken in the profession to organize and to support cancer detection efforts for the breast and the rectum, in which areas the experience of the University of Minnesota Cancer Detection Center suggests sustained endeavors will be rewarded by the salvage of life as well as function.

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Present-Day Concepts of Rectal and Colon Polyps and Their Relation to Cancer

NEIL W. SWINTON, M.D., and BENJAMIN H. SCHATMAN, M.D.
Boston

DURING THE PAST FIVE YEARS, much has been written concerning the pathogenetic relation between polyps and cancer of the colon. In several studies[1,2] the concept that polyps are premalignant lesions is denied. Ackerman and associates[1] stated that adenomatous polyps remain benign indefinitely and never degenerate into invasive cancer. In support of this, Spratt and Ackerman[3] collected a series of primary polypoid carcinomas, under 1 cm. in size, which they felt began as malignant lesions and not as benign polyps.

The classical theory that polyps are the precursors of invasive intestinal cancer has also been thoroughly investigated. Enterline and associates,[4] Morson,[5] and Warren[6] have followed the progression from benign polyps to frank malignant tumors with repeated biopsies and have found areas of benign neoplasia in carcinomas. They cited the following evidence as indications of the premalignant nature of polyps: (1) The distribution of colonic carcinoma follows the same pattern as that of benign polyps; the majority of both lesions are found in the rectum and sigmoid; (2) the age and sex incidence of patients with carcinoma and those with polyps are statistically similar; (3) of all specimens removed because of colonic cancer, 33% contained adenomatous polyps; (4) many polyps which appear clinically benign reveal foci of carcinoma on histological examination; and (5) polyps found in familial multiple polyposis are histologically identical to the solitary adenoma. If patients with this condition are untreated, frank malignancy will develop by the age of 50.[7]

At the Lahey Clinic we have never observed histological progression from benign mucosal polyp to invasive carcinoma, metastases, and death—villous polyps excluded. Weakley and Swinton,[8] in a comprehensive follow-up of patients with benign adenomas, found that the incidence of cancer of the rectum and colon was no greater than that in a similar group of polyp-free patients studied by Koppel and associates.[9]

The clinical problem is further complicated because invasive carcinomas are often polypoid in form. Until a polypoid growth is removed and studied histologically, it cannot be ascertained whether the growth is a "harmless" polyp, a premalignant papillary adenoma or villous tumor, or invasive polypoid cancer.

There will be over 70,000 deaths in the U.S. this year from cancer of the large intestine. The use of radiation, chemotherapy, and more radical surgery has not increased the survival rates significantly. Large intestinal carcinomas are relatively favorable lesions when compared with lung or gastric cancers; the five-year survival rates approach 50% in operated cases. Since these tumors grow slowly and metastasize late, the hope for increasing the survival rate lies in early diagnosis and treatment. With these principles in mind, a plan for treating patients with colonic polyps has evolved, based on the premise that these lesions are intimately related to cancer.

DIAGNOSTIC CONSIDERATIONS

Unfortunately, polyps rarely produce symptoms, whereas symptoms are often caused by associated pathological conditions. Bleeding or obstruction may occur with large polyps. Dehydration and electrolyte imbalance accompany the profuse diarrhea associated with some villous polyps.

More than 70% of benign polyps are located within reach of the 10-in. sigmoidoscope. Sigmoidoscopy should be included in every complete physical examination; after some experience it can be done with only slight discomfort to the patient. This should be followed by a barium enema with air contrast study: (1) when bowel symptoms are present; (2) when there is any suggestion of blood in the stool, and (3) when polyps, ulceration, or other lesions are

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found on sigmoidoscopy. The bowel should be adequately prepared before beginning these studies; we prefer the use of 1½ ounces of castor oil the evening before examination. If any lesions are found the diagnosis should be confirmed by a repeat radiological examination before operation. We have not used the cytological study of colon washings nor the intriguing technique of Cook and Margulis,[10] utilizing polysiloxanes to make casts of the colonic mucosa.

TREATMENT

Once a diagnosis of polyps is made, complete removal or destruction of the tumor is mandatory. For polyps below the 25-cm. level, the type of therapy depends on the clinical appearance, size, and location of the lesion.

Adenomatous polyps less than 0.5 cm. in diameter, without a pedicle, and with no evidence of ulceration or fixation are treated in the clinic. The lower intestinal tract is mechanically cleansed and the patient is placed in the inverted position. The polyp is visualized and studied through the standard sigmoidoscope. These small lesions are destroyed with Oudin current applied through an insulated fulgurating tip. Larger lesions, or those on a pedicle, are removed in their entirety with snare or biopsy forceps and the base thoroughly fulgurated. In experienced hands and with the proper equipment, the patient experiences little discomfort and can resume his usual activities within several hours. Specimens are studied histologically. If invasive carcinoma is found but there is no invasion of the stalk or adjacent bowel, local treatment is adequate. If there is invasion of the stalk, however, a radical operation is performed, removing the involved bowel and the adjacent area of lymphatic drainage. Sigmoidoscopy and barium enema studies are performed three months and six months after operation and yearly thereafter.

Villous adenomas present a more serious problem, since the incidence of malignant degeneration in these tumors is approximately 22%.[11] Villous adenomas comprise 8% of our mucosal polyps. In a small number of cases, villous adenomas have been followed from the histologically benign phase to invasive malignancy, metastasis, and death of the patient. Villous polyps are soft and velvety on palpation and may be overlooked by the inexperienced examiner. They often secrete large amounts of mucus, and are rarely found higher than 25 cm. from the anus. In the Mayo Clinic series, 32% of these tumors situated in the lower rectum were not diagnosed at the original digital examination.[12] Small areas of malignant degeneration are found in many, but apparently only a few progress to metastasis and death of the patient.

When a villous tumor is found, the patient is admitted to the hospital for definitive treatment. Villous tumors are vascular and friable, and removal may be associated with serious bleeding. After careful cleansing of the bowel a sigmoidoscopy is performed and, when possible, the entire tumor is removed with the electric snare. When the tumor is large, those above the 8-cm. level are treated by segmental resection and anastomosis, and those below the 8-cm. level are treated by multiple biopsy and fulguration. The recurrence rate is high with the latter type of therapy because of the incomplete removal of the polyp and the consequent necessity of repeated treatments, but we hesitate to do an abdominoperineal resection for any "benign" lesion.

If biopsy at any time reveals invasion of the central stroma, we proceed with radical surgery. Polyps above the range of the sigmoidoscope require laparotomy, as do any large or suspicious polyps above the peritoneal reflection. The bowel is cleansed with magnesium sulfate and daily irrigations. Sulfathalidine (2 gm. every six hours) and Humatin (1 gm. every six hours) are prescribed to decrease the bacterial content of the colon. As a result of preoperative treatment, cultures taken from the bowel at the time of surgery reveal sterile contents in greater than 75% of cases. All associated diseases such as diabetes and pulmonary disease are controlled insofar as possible. Immediately before operation a bladder catheter and nasogastric tube are inserted.

The exploratory operation is carried out through a left paramedian excision extending from the umbilicus to the pubis. Since most polyps are located in the descending and sigmoid colon, this incision provides adequate exposure. The sigmoid may be mobilized by freeing its lateral attachments and the polyp noted on the roentgenogram is then located by palpation. Many of these tumors possess a long pedicle, and to find the point of attachment the polyp should be manipulated both proximally and distally. A longitudinal incision, 3 to 4 cm., is made in the bowel to the antimesenteric taenia over the polyp. The polyp is delivered through the colotomy opening and, after its base is ligated, it is removed entirely for histological study. A sterile sigmoidoscope is then introduced proximally and distally through the incision. Any polyp seen can be fulgurated or removed with the electric snare. Our preoperative x-ray studies have been so satisfactory that we rarely find unsuspected polyps and we do not believe that multiple colotomies throughout the bowel are necessary.[13] Radical resection of the involved segment is indicated when there is definite malignant invasion of the stalk or adjacent mucosa. Segmental resection may be necessary when broad-based sessile polyps are found or when the entire lesion cannot be removed by polypectomy. Finally, the colotomy is closed with a catgut suture to approximate the mucosa and interrupted fine silk sutures in the serosa.

Postoperative care is the same as that employed after any intestinal resection. In our most recent cases a wound infection has rarely occurred, and complications have decreased as our experience has grown.

Barium enema studies and sigmoidoscopy are carried out routinely eight weeks after operation and annually thereafter.

SUMMARY

All phases of the relationship between benign mucosal polyps and cancer are not thoroughly understood. Except in the occasional poor-risk patient, all polyps, regardless of their location, must be removed or destroyed if the true histological nature of these tumors is to be recognized and adequate treatment instituted.

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TOTAL-BODY PERFUSION during open-heart operation is achieved without greatly prolonging the procedure if a systemic cannula is placed directly into the ascending aorta. If perfusion hypothermia is employed, cooled blood is carried directly to the visceral organs without first passing through the muscle mass, an advantage not provided by iliac or femoral cannulation. A small purse-string suture of double-armed 2-0 silk is placed in the aorta at the root of the innominate artery to form a circle several millimeters larger in diameter than the systemic cannula. A loop of silk through the closed loop of the suture provides for countertraction. Cut ends of the sutures are tightened through a small catheter, a button of adventitia is removed from the center of the suture, and the aorta is incised transversely. A 1-cm. long gasket is placed around an arterial catheter at a level that allows the tip to rest in the aortic arch. The cannula is placed into the aorta as far as the gasket and clamped when blood flows through freely. A suture is placed around the rubber gasket and small catheter holding the suture ends in order to prevent dislodgment. After perfusion, the defect in the aorta is closed by tying the purse-string. Stitches of 5-0 silk are placed for reinforcement. The cannulation has been employed in more than 100 open-heart operations.

RICHARD A. DE WALL, M.D., and MORRIS J. LEVY, M.D., University of Minnesota, Minneapolis. J. Thorac. cardiovasc. Surg. 45:496-499, 1963.

Current Trends in the Surgical Management of Diverticulitis of the Sigmoid Colon

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IT IS OBVIOUS from perusing the current medical literature[1-9] that earlier operations for diverticulitis and its complications are generally recommended by most surgeons dealing with this disease entity; just a decade ago it was considered sacrilege to operate upon these patients short of a complication. Sherman[1] reviewed 117 cases of diverticulitis treated at Temple University Hospital (1950). The average period of morbidity "before return to work" was six months when surgery was performed for the complications of diverticulitis. With earlier operations we would like to report a more recent group of 75 patients operated in the past 10 years that averaged one month morbidity.

It is our hope this paper will stimulate more conscientious "ground rules" that will save the patient with medically unresponsive diverticulitis much costly hospitalization and get him back to the "mad pursuit of the dollar" earlier.

HISTORY

The nature and etiology of diverticula of the large intestine have offered a fertile field for study and speculation for several centuries. Littré,[10] in 1700, mentioned "diverticular hernia" without explaining it. Fischer[11] has said that although the first description of diverticula of the intestine is usually attributed to Sömmering in his translation into German of Mathew Baillie's *Morbid Anatomy*, in 1794. Voigtel cited previous cases which had been recorded by Schröch, Riolan, Günz, Morgagni, and Haller.

The subject of diverticula of the intestine was discussed by Cruveilhier[12] in 1849. W. J. Mayo, Wilson, and Giffin[13] were the first to record a group of cases in which actual demonstration of the pathological changes which occurred in diverticulitis was established during life. In the same year Moynihan[14] called attention to the mimicry of carcinoma to diverticulitis. In 1909 Giffin and Wilson[15] described the occurrence of peridiverticulitis, and in 1911 Wilson[16] described in detail pathology, pathogenesis, and complications of diverticulitis of the large intestine in which operation had been performed at the Mayo Clinic from 1902 to 1912.

The first preoperative roentgenologic demonstration of diverticula is attributed to Le Wald, and the surgical aspects of this case were reported by Abbe[17] in 1914. Comprehensive studies were reported by Rankin and Brown[18] who noted an incidence of 5.67% in 24,620 roentgenologic studies of the colon. W. J. Mayo[19] reported an incidence of 5.71% in 31,838 examinations in the period from 1924 to 1930.

ETIOLOGY

Many theories have been advanced in the literature to explain the manner in which diverticula of the colon develop in later life. The most commonly mentioned of these is concerned with herniation of intestinal mucosa near points of entry and exit of blood vessels. We believe that this is the most tenable hypothesis to explain the development of acquired diverticula of the large bowel. Other factors such as increased intracolonic pressure, the process of atrophy in the musculature of the aging intestinal wall, and the narrower bowel lumen at the rectosigmoid and the horizontal plane of the pelvic sigmoid must be considered as contributory factors.

As they approach the colon the terminal arteries are made up of short and long branches; the former enter the bowel wall directly on the mesenteric side while the longer branches pass subserously directly toward the antimesenteric border and penetrate the muscularis to the submucous layers generally at or near the bases of the appendices epiploicae.[20] These sites represent the usual locations of the majority of the diverticula.

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The mechanism described by Edwards[21] for the formation of acquired diverticula of the intestine is indeed adequate. He emphasizes the "weak spots" in the intestinal wall at the point where the blood vessels enter it. He amplifies this by pointing out that these vascular outlets become smaller during the period of contraction of the bowel. Conversely, they become larger during the period of relaxation. If contraction of 2 portions of the intestine occurs with a relaxed segment between them, the bilateral pressure will force the mucosa into the enlarged vascular outlets in the relaxed segment and thus produce initial herniation which may then progress to full diverticular formation.

As diverticula develop they expand into saclike structures of varying sizes, but they retain the small point of their origin which acts like a collar. This is an important factor in the subsequent development of diverticulitis. Fecal material enters the sac through the constricted neck and is confined therein by the small opening. The diverticula have little to no muscular coat and frequently cannot eject the offending material. As a result the foreign body becomes inspissated and stagnant, soon ulcerates the lining of the sac, and sets up an infection of a mild or severe nature. Undoubtedly, concomitant edema of the mucosa lining the neck of the sac contributes to the complete obstruction, and a process ensues quite similar to the obstructive type of appendicitis.

Henderson[22] has suggested that diverticula appear during or after an attack of inflammation in a section of the colon, and it is this initial inflammatory attack or series of attacks which constitutes a mechanism that brings about weakening of the wall. Fansler[23] stated that diverticula appear more frequently along the antimesenteric border of the colon and that diverticula occur at areas of weakness produced by degenerative changes in the muscularis. He does not believe that herniation of mucosa occurs at defects in the muscularis produced by the blood vessels. He further explains the frequency of diverticula in the appendices epiploicae by the loose adherence of the peritoneum to the bowel wall and consequently lessened resistance in these areas (Fig. 1).

INCIDENCE

Diverticula of the colon are rarely seen in persons under the age of 30. However, several cases of diverticulitis occurring in the first decade of life are reported in the literature. Brown[24] estimates that approximately 4% of diverticula of the large bowel occur in the 30 to 40 age group and that about 95% are encountered in persons 40 years of age or older. It is not uncommon to find 2 or more instances in a family; Schlotthauer[25] has reported the occurrence of diverticula in 7 brothers while 2 sisters had no diverticula.

It has been estimated that approximately 10% of all persons over the age of 40 years have diverticula of the colon. Of this group, it is further calculated that in 15% diverticulitis will eventually develop and that in 25% of these patients indications for surgical intervention will develop.[26]

The reported sex incidence of diverticulosis varies from equal distribution among males and females to a preponderance of 4:1 in males in Erdman's[27] experience. Fansler[23] stated that diverticulosis occurs in the male twice as frequently as in the female but the presence of diverticulitis is about equal in the 2 sexes. It is

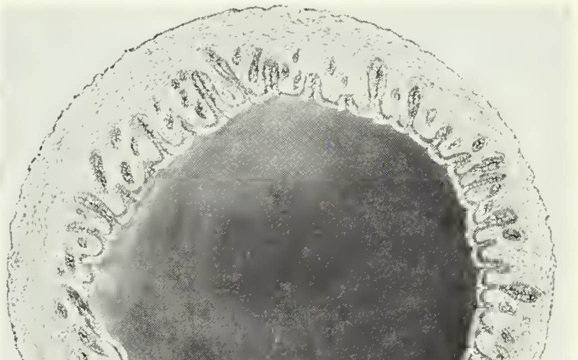

Fig. 1. Schematic drawing showing the layers involved in the formation of diverticula. Note that the herniation occurs at the point where the blood vessel pierces the muscle layer. The probe has been placed to show the characteristic constricted neck of the diverticulum.

frequently stated that obese individuals are more likely to have diverticulosis than thin persons. W. J. Mayo[19] believed that neither obesity nor constipation is a real cause of diverticulosis.

Young and Young[28] in 1944 compiled statistics from the literature and found diverticulosis in 5.7% of 70,572 colons examined at necropsy or roentgenographically. Pemberton and Black[29] reported diverticula present in 8.5% of 47,000 colon x-rays taken at the Mayo Clinic.

Diverticula may appear anywhere in the various segments of the colon but they occur most frequently in the sigmoid. Martin and Caudle[30] in reviewing 119 cases of diverticular disease from Grady Hospital reported diverticulosis of the sigmoid colon, alone or in combination with other segments in 63% of the patients, while the descending colon was involved in 80% of the patients. They found the sigmoid colon was involved with diverticulitis either alone or in combination with other parts in 83%, while the descending colon was involved in a similar manner in only 33%. Dixon[26] reported 80% of all gastrointestinal diverticula in the sigmoid colon.

PATHOLOGY

Diverticula communicate with the lumen of the intestine and are capable of filling and emptying frequently, but when a fecalith occludes the narrow neck of the sac, edema of the mucosa with obstruction to emptying occurs. With retention of the contents and consequent irritation of the mucosa, inflammation occurs and the process of diverticulitis is at hand. From this stage there are several possibilities as to the future course. The inflammation may subside and the episode is then over. If this does not occur, one of several conditions may develop. Bacterial peritonitis may develop from extension without perforation of the inflamed diverticulum. This is rare, however. The inflamed sac may rupture and produce acute peritonitis. The inflammation may spread to involve the intestinal wall and other diverticula and thus produce the condition known as "peridiverticulitis," with narrowing of the lumen of the intestine and eventual obstruction after repeated attacks. A localized abscess may occur as a consequence of the diverticulum's perforation. Fistulas between the inflamed region and the bladder, vagina, abdominal wall, or other intestinal segments may develop.

Arnheim[31] has collected the following statistics, relative to the complications of diverticulitis, from cases reported in the literature: Perforation with formation of abscess occurred in 19% and peritonitis in 12% of 834 collected cases. Formation of fistulas occurred in 8% of 1,516 cases; the sigmoidovesical fistula was relatively frequent and more common in diverticulitis than in carcinoma of the sigmoid. Peridiverticulitis with narrowing of the lumen of the intestine and tumefaction occurred in 20% of 1,049 cases.

The exact incidence of diverticulitis in cases of diverticulosis is not definitely known. Smithwick[8] has estimated that in 1 patient of 10 with diverticulosis, diverticulitis will develop. Pemberton and Black[29] have calculated this incidence at 15%.

SYMPTOMS AND DIAGNOSIS

The symptoms of diverticulitis may vary considerably according to the stage of the disease of the specific complication encountered in the individual patient. However, the classic syndrome of acute diverticulitis consists of crampy pain in the lower part of the abdomen associated with obstipation in about five-sixths of the cases and with diarrhea in the remainder. Nausea and vomiting are less striking symptoms unless considerable obstruction and peritoneal reaction exist. There may be a mild to moderate leukocytosis. Occasionally a mass may be palpable in the region of the sigmoid. Flatulence and low-grade fever may be present.

The passage of slight blood with stools to massive hemorrhage may occur in 7 to 32% of patients with diverticulitis according to various competent observers.[18,23,32–34] Other authorities[21,35,36] are reluctant to admit that gross bleeding may be due to diverticulitis. Fansler[23] and Rosser[34] believe that bleeding is a not infrequent complication of diverticulitis. Rosser quotes 50% of 16 patients with no other cause for gastrointestinal bleeding except diverticulitis after a thorough medical investigation. Of the 117 private patients studied in our group in 1950, some degree of gross bleeding was noted by 18%. It is our belief that carcinoma or bleeding from other sources should be suspected and definitely ruled out in all cases, particularly when a conservative regimen of treatment is elected.

In Table 1 are the symptoms cited in our group of 117 private patients reported in 1950.[1]

Low back pain is stressed by Le Royer and White[37] as a diagnostic symptom of diverticulitis, adding that this symptom has been little emphasized in the past. They believe it should be considered a part of the clinical picture. Lower back pain was noted in 20.5% of 200 patients with diverticulitis at the Hartford Hospital.

When complications of diverticulitis arise, a new array of symptoms may become apparent.

TABLE 1

Symptoms	*Number of patients*	*Percentage*
Pain (abdominal)	98	83.7
Constipation	80	68.3
Diarrhea	13	11.1
Constipation alternating with diarrhea	15	12.7
Bleeding	21	18.0
Palpable mass in sigmoid (noted by patient)	23	19.6
Pneumaturia	19	16.3

When perforation has occurred, signs of peritonitis such as cramping lower abdominal pain usually are present and are associated with fever, chills, and abdominal tenderness. If the process becomes localized and an abscess forms, a mass may soon become palpable in the lower abdomen and the febrile course will persist. Perforation and extension into the psoas muscle may occur in some instances. Here an abscess may not be palpable, but severe low back pain radiating down the anterior thigh may be the chief symptom. We are all aware of the frequent diagnostic confusion which arises in cases of women in whom a pelvic mass so often is mistaken for disease of the adnexa. Particularly, this is more likely to occur when there are minimal symptoms of bowel dysfunction.

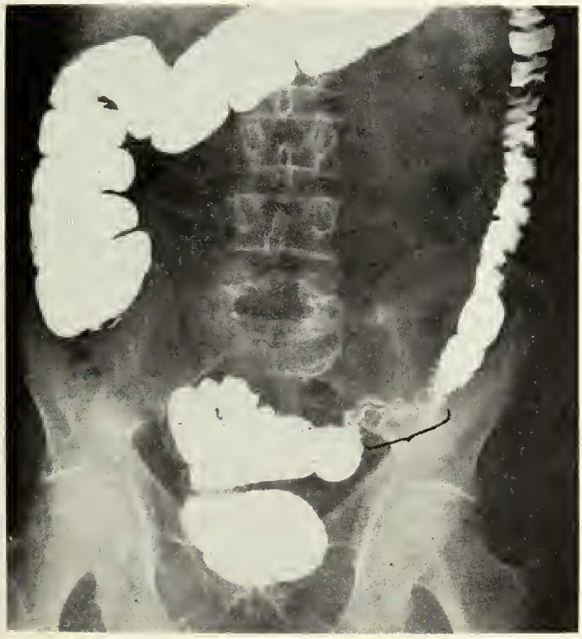

Fig. 2. G. R., aged 61; barium enema reported diverticula and an inconstant defect of the sigmoid. Resection verified diverticulitis and peridiverticulitis with stricture formation.

Perforation of an abscess or an inflamed diverticula may involve the bladder, vagina, other loops of bowel, or the abdominal wall with the formation of a fistula. The formation of a sigmoid fistula is usually due to diverticulitis but may occur with carcinoma. History of pain on urination, frequency, burning, and nocturia warn of adhesions to the bladder. When the fistula becomes established, the urine will become foul and a progressively severe cystitis develops. The passage of flatus on micturition is a strong presumptive evidence of a colovesical fistula. There are no specific symptoms to indicate either an imminent or actual fistula into a neighboring bowel loop. The established fistula is usually uncovered by roentgenogram or by operation.

In some cases of chronic or recurring diverticulitis considerable fibrosis of the bowel wall and narrowing of the lumen occur. These patients usually have recurrent bouts of abdominal pain, fever of varying degree, and a change in bowel habits, usually toward progressive constipation. A mass may be palpable in the involved region and ultimately obstructive symptoms develop if the condition persists long enough (Fig. 2).

The diagnosis of diverticulitis is not always easy. Since the course of the disease may run the gamut from a single attack of acute diverticulitis to the various situations just described, it is readily apparent that the symptoms and physical and laboratory findings may vary. All the available diagnostic adjuncts should be used.[38]

Buie and Jackman[39] have stated that sigmoidoscopy is not only of distinct aid from a negative viewpoint but does afford definite contributory diagnostic assistance. They list 5 signs that are strongly suggestive of diverticulitis, namely: (1) limited mobility of a segment of bowel that is normally freely movable; (2) angulation of the bowel due to inflammation; (3) reduced lumen and adherent mucosal folds, the former due to contracture of the fibrous tissue which has infiltrated the wall of the bowel; (4) sacculations of the sigmoid which may appear as shallow pouches or depressions which may extend partially or completely around the wall of the bowel; and (5) actual visualization of the openings of the diverticula through the sigmoidoscope. Of 242 patients with diverticula of the colon, they found one or more of the foregoing signs in 66%. In 35 cases they saw the diverticula.

The double contrast barium enema is one of the most helpful aids in establishing the diagnosis. Although there is now only historical interest in any relationship between diverticulitis and cancer, the problem of making a differential

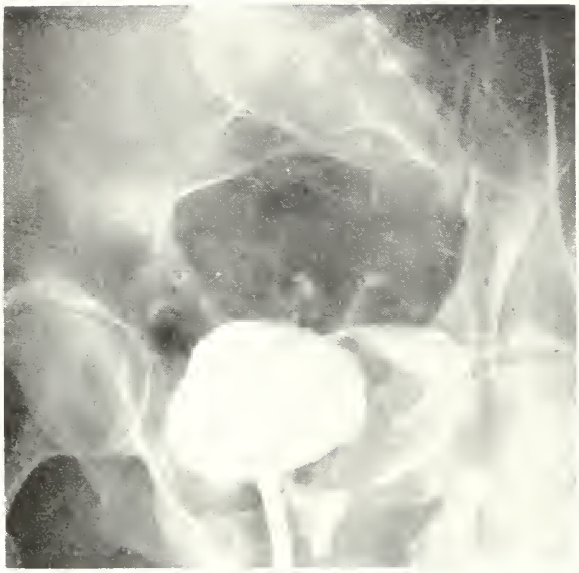

Fig. 3. D. D., a 58-year-old white male; history and symptoms of diverticulitis three years prior to admission, confirmed by barium enema; abdominal distention, pain of left lower quadrant, dysuria, and pneumaturia on this admission. Cystogram confirms diagnosis of sigmoidovesical fistula; opaque media has entered sigmoid and rectum; a preliminary diversionary colostomy was performed and subsequent definitive surgery postponed by several episodes of nephrolithiasis.

diagnosis is far from a simple one. Schatzki[10] of the Massachusetts General Hospital states that a roentgenologic diagnosis between carcinoma and diverticulitis of the colon is easy in most cases, difficult in some, and impossible in a few. In some cases the surgeon cannot make a definite diagnosis with the lesion in his hand.

Colovesical and enterocolic fistulas may be visualized by the passage of the opaque solution from the sigmoid into the adjacent loop of bowel or into the urinary bladder. The tracts are not always distinct, particularly in the enterocolic variety. In the more common colovesical fistula, the tract is more easily visualized by cystoscopy, cystography, using a dye such as indigo carmine or methylene blue, and sigmoidoscopy (Fig. 3).

TREATMENT

Although we would like to emphasize the earlier surgical treatment of diverticulitis short of complications, we must be frank to admit the treatment of choice for uncomplicated diverticulitis should be medical or conservative. Most patients with this condition respond to medical management designed toward placing the inflamed part at rest. A liquid diet is advisable with progression to bland, low residue feedings as the acute episode subsides. All fruits with seeds should be avoided, as well as rough, raw, or stringly vegetables. Stool softeners, such as mineral oil emulsions, are of definite value when administered in small dosages several times daily.

Irritative cathartics and colonic irrigations should be avoided at all times because of the danger of perforation. Hot saline rectal instillations are of doubtful value. Oil retention enemas and stool softening suppositories may be used when absolutely necessary to aid elimination.

In 1950, Bacon and Sherman[1] stated that surgical intervention in diverticulitis should be reserved for its complications and those cases in which there is failure to respond under adequate medical therapy. The indications for operative procedure are stated as follows: (1) perforation with peritonitis, (2) abscess formation, (3) intestinal obstruction, (4) actual or impending formation of fistula, (5) chronic or recurring diverticulitis, and (6) indistinguishability from cancer.

Currently, we adhere to the above indications, of course, but we have tried to liberalize our indications for surgery somewhat with morbidity as the chief influencing factor. Combining the proctoscopic and barium enema findings and a careful history, we try to make a conscientious decision as to whether this patient is headed for a more complicated future or whether adherence to a strict medical regime will hold him in status quo. This is not an easy decision to make in many instances. However, we do feel that patients with the history of 2 bouts of considerable bleeding qualify for resection, as do patients with 2 or more bouts of considerable peridiverticulitis, with corresponding proctoscopic and x-ray confirmation; impending vesical fistula, of course, also qualifies. This recommended liberalization of operative indications for resection of the sigmoid colon cannot be catalogued exactly and must be left to the individual surgeon's discretion, but with currently decreased operative risk and an eye on the tremendous period of morbidity that these patients are subjected to if they await the development of a complication of diverticulitis, we feel that earlier resection is justified and recommendable.[1,3,4,6-9]

Table 2 illustrates our current approach.

CONCLUSIONS

Table 2 indicates that earlier surgery for diverticulitis is not without its complications; however, with experience, this incidence can be diminished. Complementary, diversionary transverse colostomy is a valuable "crutch" where any doubt exists as to the presence of infection or residual inflammation of the rectal stump. Thus, the surgeon commits the patient to 2, rather than the classical 3-stage procedure that is usually indi-

TABLE 2

OPERATIVE PROCEDURES FOR DIVERTICULITIS (1951-1963)

Operation	*Number of patients*	*Complications*		*Deaths*	*Percentage*
Anterior resection and/or left colectomy	63	(a) Anastomotic breakdown	1	1	1.5%
		(b) Anastomotic leaks	3		
		(c) Presacral abscess	3		
		(d) Wound dehiscence	1		
Anterior resection and/or left colectomy with complementary transverse colostomy	5	(a) Recurrent vesicle fistula	1	0	0
		(b) Presacral abscess	1		
Transverse colostomy	7	(a) Recurrent presacral abscess	1	0	0
Subsequent anterior resection	6				
Closure of colostomy	6				
Drainage of abscess	3				
Total percentage of mortality					1.3%

cated with the complications of diverticulitis.

We feel that adequate dependent (presacral stab wound) drainage with suction is of real value in diminishing complications postoperatively. Careful bowel preparation, chemical and mechanical, should precede surgery; however, the most important single adjunct contributing to an uneventful postoperative course is a good 2-layer anastomosis, free of tension. Dixon[26] has often been quoted in advising his residents with the trite but true expression: "As you sew, so shall the patient with diverticulitis reap."

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The Skin Level Sigmoid Colostomy and Its Management

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THE SKIN LEVEL sigmoid colostomy has proved its advantages over the previously advocated protruding stoma. In 1950, Campbell and Schaerrer[2] cited the advantages of a skin level stoma before the section of gastroenterology and proctology of the American Medical Association and described its construction by removing the conventional protruding section of bowel about two weeks after the primary surgery. The reasons for a two-stage procedure were based on fallacy, just as opposition to the skin level stoma was based on fallacy. In 1951, Crider and Neubeiser[2] advocated the construction of a skin level stoma at the initial operation. We have routinely used this procedure since that time without complications and with excellent cosmetic and functional results.

The original supposition was that a length of bowel should protrude 1 or 2 in. above the skin to assure adequate circulation, prevent stenosis, and deliver the bowel content into a receptacle. Actually the protruding mass jeopardized the circulation from pressure or trauma, stenosis was a frequent late complication, and no receptacle is necessary except in emergency situations.

In 1950, Campbell and Schaerrer stated that "stenosis may occur at the skin level" and "the degree of contraction varies with the fibroblastic diathesis of the patient and the added stimulus resulting from trauma, infection, or cauterization." It has become evident that infection is the principal cause of stenosis at the skin level. The high incidence of skin level stenosis in the slowly maturing ileostomy was proved to be due to serositis. To prevent this, the ileal mucosa is sutured to the skin. Likewise, when the sigmoid mucosa is sutured to the skin, serositis does not develop and stenosis does not occur. We have constructed this type of colostomy stoma in 154 patients, with no circulatory accidents. Even moderate stenosis is rare.

A number of long-standing protruding stomas were reconstructed at skin level to the great satisfaction of every patient. As one young lady put it, "I can now wear a tight-fitting party dress."

CONSTRUCTION OF THE COLOSTOMY

At conclusion of the abdominal portion of the operation, the terminal sigmoid can be brought out through the original incision or through a stab wound. An elliptical section of skin is removed so that the finished stoma is approximately 3 cm. in diameter. Extremely large epiploic appendages just below the skin level should be removed to avoid bulging of the mucosa. The skin and mucosa are carefully approximated by a lock stitch using 3.0 chromic suture (see illustration). It seems to make no difference whether the muscularis is included or not. Previously, a colon tube was left in the bowel, but this has been discontinued because its deflating value was negligible. Seldom does soiling of the wound occur immediately after surgery.

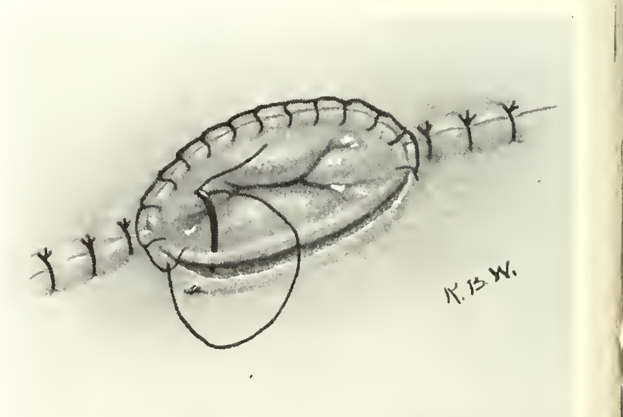

Fig. 1. Mucosa to skin at skin level

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Bowel function may return two or three days before the sutures are removed. The suture line can be protected very well by using wire tension sutures which extend through skin, fat, and fascia and are tied over gauze sponges the thickness of 2 fingers. The skin should be closed with skin clips to minimize puncture wounds. Sulfathiazole crystals or an antibiotic powder is applied liberally to the incision and around the puncture wounds from the sutures. Bowel contents may grossly contaminate the surface of the original dressings; when the dressings are removed, the skin is perfectly clean and free from infection.

CARE OF THE COLOSTOMY

We do not try to stimulate bowel function by irrigations or laxatives for at least seven days postoperatively. As soon as liquids are tolerated orally, a bacteriostatic agent (Cremosuxidine), 0.5 oz. twice daily, is started. This almost always initiates bowel function. If no results, a few ounces of normal saline solution are then injected. As soon as the bowel and peritoneum have recovered from the surgical trauma, the bowel will function.

After dressings and all sutures are removed, usually on the eighth or ninth day, the patient is started on irrigations. A number of irrigators are on the market, and all are efficient when properly used. Many patients with colostomies are miserable if they are dismissed with no instruction in daily management. This training should not be left to inexperienced personnel.

The commonest mistake, when an irrigation is ordered, is the insertion of a tube for 2 or 3 in., allowing the water to run in and out. The patient must understand that, for adequate emptying of the colon, 1 to 2 pints of water must be instilled at one time so that water reaches the cecum. As a rule, this will empty the entire colon and assure freedom from drainage for at least twenty-four hours.

After healing is complete, the patient is instructed to cover the stoma with a facial tissue with a dab of petroleum jelly on it, a thin, 4- by 4-in. square of cellucotton, a square of plastic material, and a supporter of the patient's choice. For men, an abdominal support can be obtained at men's or department stores, and for women, anything from a simple two-way stretch to an elaborate corset will suffice.

When patients begin to go out socially or on business following such an operation, their apprehension may produce the very thing which they fear most—leakage from the colostomy. Disposable plastic colostomy bags, with adhesive facing and no belt, are available at most surgical supply stores. The patient is instructed to carry one of these with him at all times but not to wear it except when needed. Should he be away from home for an unusually long time, be under nervous stress, or indulge in some dietary indiscretion, one of these bags can easily be applied and embarassment avoided. Tincture of camphorated opium, 1 or 2 drams, before leaving home may be reassuring and minimize bowel activity.

Previously, a diet list was given patients with colostomies, but this has been discontinued. Instead, the physician should explain that the storage factor is reduced and voluntary control is absent but the remaining intestinal tract is as efficient as ever. Excessive fat, laxative foods, and any food known to cause loose stools should be avoided. Experience will tell what should or should not be eaten.

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Rectal Procidentia

Surgical Treatment

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ALTHOUGH RECTAL PROCIDENTIA (Fig. 1) is a relatively uncommon condition, it has been the subject of a great many papers over the past half century. The multiple surgical techniques proposed for the treatment of rectal prolapse have been due to the individual interpretations of the anatomical defects present and the relationship of these defects to the development of this condition. The immediate results obtained by most procedures have been good, but the long-range results have been far from satisfactory. Even in the recent literature there has been no standardization of techniques, but since one-stage colon resections have become popular, many surgeons[1–7] consider anterior resection to be the treatment of choice for rectal prolapse. Further experiences[3] with 23 cases treated by proctopexy and primary sigmoid resection have continued to justify its use in selected cases.

It is generally accepted that rectal procidentia is a sliding hernia through the pelvic fascia as described by Moschcowitz,[8] the protruding mass involving all of the layers of the rectal wall. However, in order for the rectum to prolapse through the defect in the pelvic floor and protrude through the anal sphincter, 3 additional abnormalities are essential: (1) an abnormally deep cul-de-sac of Douglas or rectovesical pouch must be present (Fig. 2), (2) the rectum must be abnormally loosely suspended in the pelvis with weak and elongated suspensory ligaments, and (3) a mobile redundant sigmoid colon with a long mesentery must be present in order to reach to the bottom of the deep pelvic floor and intussuscept through the sphincter mechanism. If all of these abnormalities or weaknesses are present, numerous exciting causes may initiate the prolapse. An adequate surgical procedure designed to cure rectal procidentia should correct all of these abnormal findings along with closure of the defect in the pelvic floor. This must be done through the abdominal approach since it is impossible to fulfill these requirements through perineal procedures alone.

The composite surgical procedure employed in this series combines selected techniques or modifications of techniques which have been advocated by others and is designed to eliminate all of the abnormal factors that contribute to the formation of rectal procidentia.

In 1939 Pemberton[9] concluded that an abnormally loosely attached rectum was the most important factor in the development of massive rectal prolapse and that prolapse could not develop if the organ was firmly fixed. He advocated complete posterior mobilization of the rectum, elevation, and intra-abdominal fixation, along with raising the level of the pelvic floor. The cavity created posteroir to the rectum by the dissection and elevation fills in with scar tissue, achieving firm fixation of the posterior rectal wall. In 1942 Graham[10] concurred with Moschcowitz[8] that rectal procidentia was a sliding hernia, and he believed that repair must employ the same principles applied to all hernias. He advised laparotomy, excision of the peritoneal sac, and closure of the defect in the pelvic floor. In this series modifications of these 2 procedures have been used, along with maximal resection of the sigmoid colon with end-to-end anastomosis. Primary sigmoid resection in the treatment of rectal prolapse was first reported by von Eiselsberg[11] in Vienna in 1902.

The procedure used in this series consists of the following steps: (1) mobilization of the rectum by the abdominal route, (2) elevation of the rectum as high as possible and fixation of the lateral rectal stalks by suture to the periosteum of the sacrum, (3) suture of the endopelvic fascia anterior to the rectum and obliteration of the cul-de-sac, and (4) segmental resection of all the excess sigmoid colon with end-to-end anastomosis.

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TECHNIQUE

The details of this technique have been published previously,[1] and the following is a summary of the technique and the modifications which have been developed.

The abdomen is opened through a left paramedian incision and the patient placed in a Trendelenburg position. Incision of the pelvic peritoneum and dissection of the rectum are done exactly as in the abdominal phase of a Miles abdominal-perineal resection except for preserving the blood supply to the rectum and keeping the lateral rectal stalks intact. The rectum is completely mobilized down to the levator muscles. This can be accomplished with ease because of the laxity of the rectal supports. The freed rectum is drawn up into the abdomen, making the lateral stalks stand out prominently. The rectal stalks are then sutured to the periosteum of the sacrum with silk to hold the organ firmly in this elevated position (Figs. 3 and 4). It is important that the sutures in each rectal stalk be placed directly adjacent to the rectal wall, where the stalks are well developed. The central portion of the stalks are thin and friable and will not hold sutures. The cavity created posterior to the rectum by the dissection and elevation fills in with scar tissue, after the method of Pemberton,[9] achieving firm fixation of the posterior rectal wall. The firm anchoring of the elevated rectum to the sacrum by suture also prevents tension on the anastomotic suture line which might occur with straining during the early postoperative period. The cul-de-sac is obliterated to a high level by suturing the endopelvic fascia anterior to the rectum (Fig. 3). No attempt is made to approximate the levator muscles anterior to the rectum. The excess peritoneum of the cul-de-sac is excised and the new peritoneal floor is sutured snugly about the elevated bowel with interrupted silk. The lateral peritoneum of the descending colon is incised up to the splenic flexure and the descending colon mobilized. The sigmoid colon is then prepared for resection by division of the mesocolon and its vessels down to the superior hemorrhoidal artery and vein which are preserved. Sufficient sigmoid colon and mesentery are resected so that the anastomosis may be accomplished without tension but the redundancy completely eliminated. Any convenient site may be selected for the anastomosis which is done by the open method. All of the raw surfaces are reperitonealized except for a portion of the left gutter.

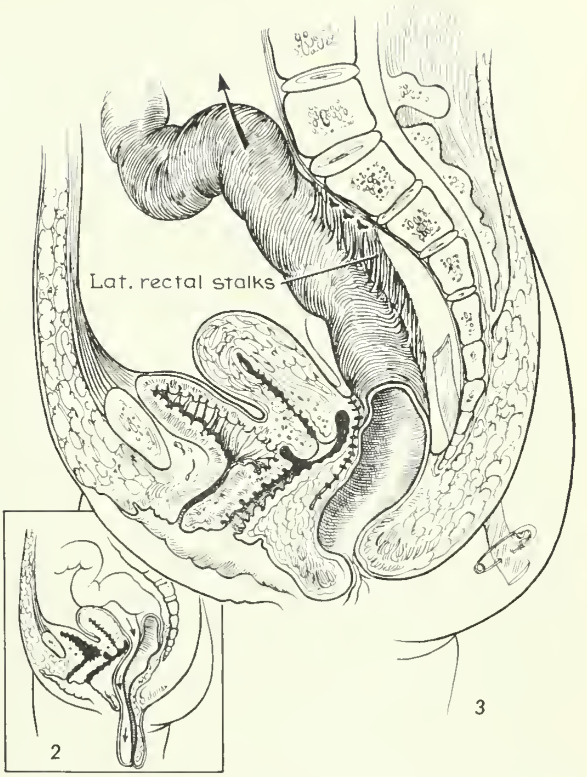

Fig. 2. Illustration of rectal procidentia with arrows indicating the deep cul-de-sac of Douglas or hernial sac

Fig. 3. Illustration of rectum mobilized and elevated, with suture of the lateral rectal stalks to the periosteum of the sacrum. The suture line anterior to the rectum indicates the site of suture of the endopelvic fascia and obliteration of the cul-de-sac. The excess peritoneum is excised. A Penrose drain provides drainage of the cavity created posterior to the rectum.

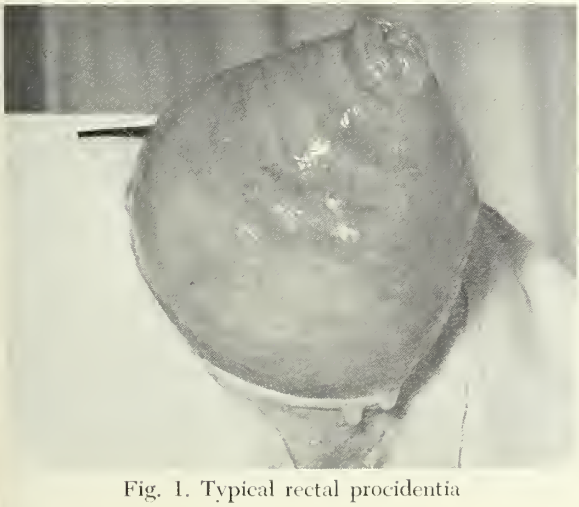

Fig. 1. Typical rectal procidentia

In the past few years considerably more colon has been resected in the treatment of rectal prolapse than was done initially. Several years ago it was found that occasionally excessive mobility and redundancy was present in the descending

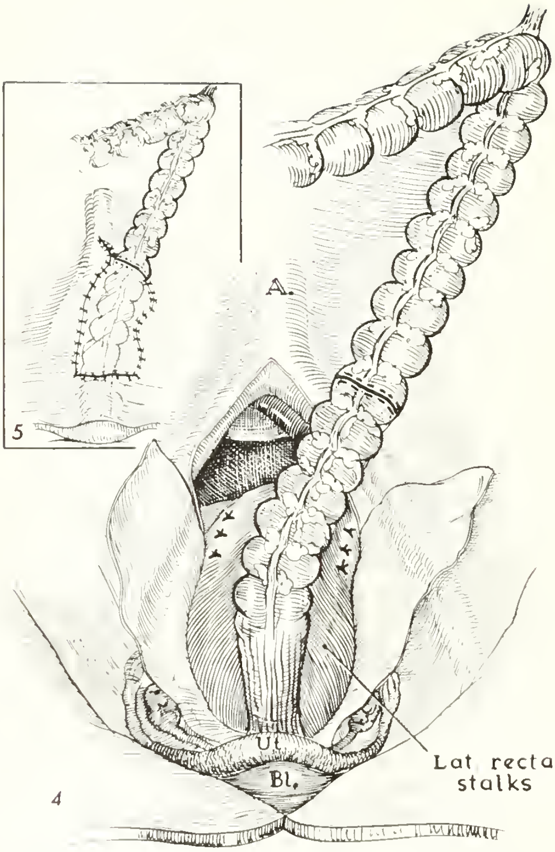

Fig. 4. Illustration of the anterior view of the mobilized and elevated rectum showing the lateral rectal stalks sutured to the upper portion of the sacrum. The anastomotic suture line is shown following the colon resection with maximal shortening of the sigmoid and proximal fixation by the phrenocolic ligament.

Fig. 5. Illustration of the reconstructed pelvic floor

colon. In these cases the operation was extended to include mobilization of the left colon to the splenic flexure to remove this excess bowel. In recent years mobilization of the left colon to the splenic flexure has become a routine procedure with all cases of rectal procidentia treated by proctopexy and sigmoid resection. It is very simple to extend the dissection proximally to mobilize the descending colon, and this additional maneuver permits the resection of considerably more large bowel. A straight left colon which is well supported proximally by the phrenocolic ligament then remains, and distally the elevated rectum is firmly fixed by sutures to the periosteum of the sacrum (Fig. 4). Suction drainage of the presacral space is used through a stab wound adjacent to the coccyx. Figure 5 illustrates the reconstructed pelvic floor. Figure 6 shows the barium-filled colon before and after surgery.

RESULTS

Twenty-three cases of rectal procidentia are included in this series. There were 20 females and 3 males, or a ratio of 6.7 to 1. The ages of these patients ranged from 26 to 82 years, with an average of 50.4 years. Eight of these patients, or 29%, had had 1 or more attempts at surgical repair of the rectal prolapse with recurrence. One lady, who was operated upon at age 67, developed a rectal prolapse at age 39 after the birth of her fifth child. She had had 2 perineal amputations and 2 laparotomies over the ensuing years, all of which were followed by recurrence.

All of the patients were treated by proctopexy and segmental resection of the sigmoid colon as described, leaving only enough sigmoid so that the end-to-end anastomosis could be accomplished without tension. The average length of resected segment was 31.2 cm., as measured by the pathologist, with a maximum of 68 cm. and a minimum of 19 cm. These patients have been followed for a period of from one to eleven years with no evidence of recurrence. There has been no mortality in this series and very little morbidity.

Seven females and 2 males, or 39%, of the 23 patients in this series were mentally defective. Six cases were confined to state mental hospitals, and 3 of the patients from Minneapolis General Hospital had major psychiatric diagnoses as well as the rectal procidentia. This high percentage of mental defectives may not be significant since in the St. Mark's Hospital series reported by Hughes[12] only 10 of 215 adults were mental patients (4.7%). The age of the mental defectives with rectal prolapse, however, was considerably younger than those with normal mentality. The mental defectives had an average age of 34.3 years, as compared with 56.8 years for those with a normal mentality. Rectal procidentia is usually thought to be most prevalent with aged individuals, but with mental patients this apparently is not true. The majority of the mental patients in this series also had a long dilated colon and associated chronic abdominal distention. There is no satisfactory explanation for the higher incidence of rectal prolapse or its earlier development among the mental defectives. It has been postulated that undue straining at stool with mental defectives may be a factor in the production of rectal prolapse. There was no relationship to childbirth trauma in the mental patients.

In patients with a normal mentality a definite relationship seemed to exist between the trauma of childbirth and the development of rectal prolapse. Seven of the 13 females (54%) with normal

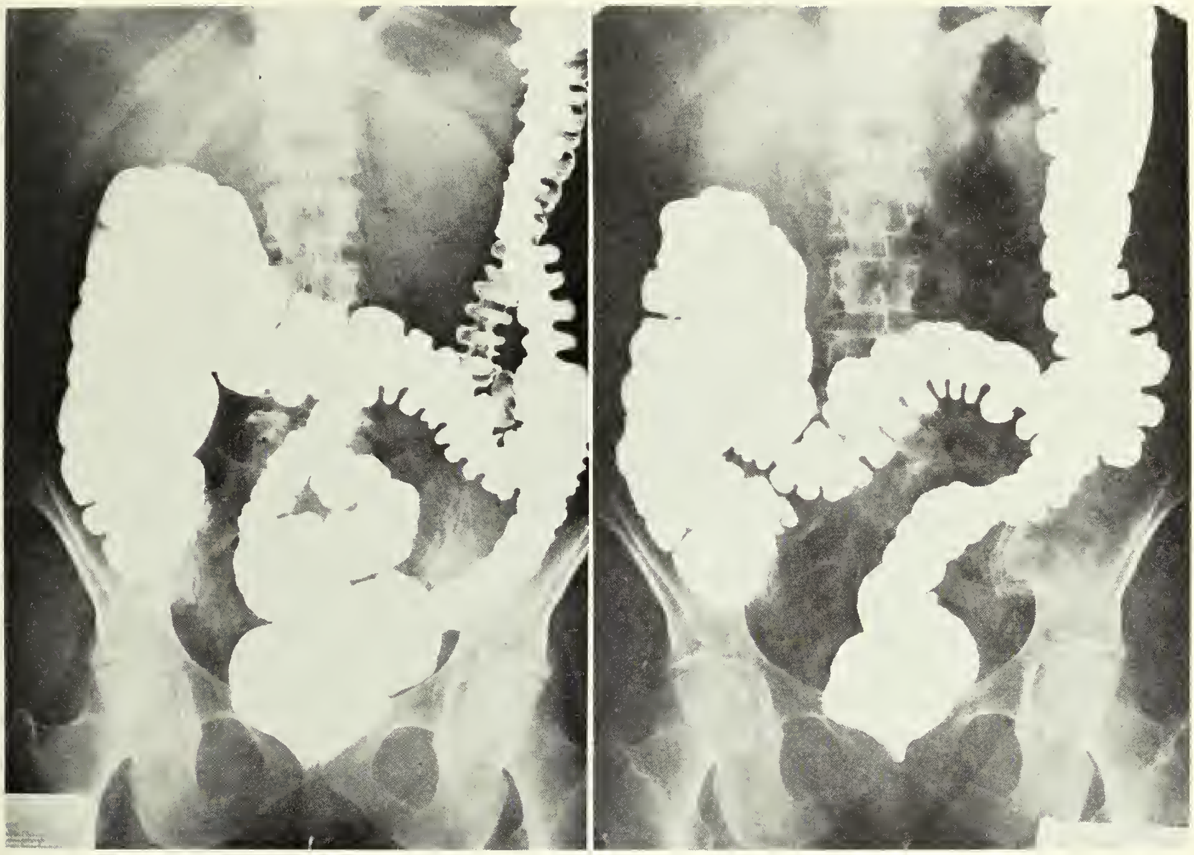

Fig. 6 (left). Barium-filled colon before surgery demonstrating the dilated rectum with the long redundant sigmoid colon coiled in the deep pelvis. (Right) Barium-filled colon after proctopexy and maximal resection of sigmoid colon

mentality connected the onset of the prolapse with the birth of children. Two women indicated that the rectal prolapse appeared shortly after the birth of their first child, 3 after the birth of the second or third child, 1 following the delivery of her fifth child, and 1 following her eighth delivery. Congenital weakness or defects must be present in these individuals, with the trauma of childbirth being sufficient to initiate the prolapse. Two of these women have had full term pregnancies since the surgical repair of the rectal prolapse with no evidence of recurrence.

Sphincter exercises have been used routinely on all patients postoperatively. Initially most of the patients had difficulty controlling gas and liquid stool. The younger patients rapidly regained muscle tone in the dilated sphincter and are completely continent. With many of the elderly patients, however, the sphincter was atonic and adequate muscle tone did not return. Several of these elderly patients, however, have no particular complaints of incontinence and soil themselves infrequently even though the sphincter is atonic. They seem to be aware of the presence of stool in the rectum and have some degree of control by contracting the gluteal muscles. Additional surgery recommended in these individuals in an attempt to improve anal continence has been refused. Surgical repair of the anal sphincter has been done in 4 cases. A Thiersch wire has been used to snug up the anal canal in 3 cases, and in 1 patient with a deep perineal laceration a modified perineorrhaphy and plication of the anal sphincter were done.

COMMENT

Maximal resection of the sigmoid colon is a vital step in the treatment of rectal procidentia, and if it is done in conjunction with the other reparative procedures, it is felt that recurrence of the prolapse is virtually impossible. The generally accepted concept of Moschcowitz that rectal procidentia is a sliding hernia demands that a long mobile sigmoid colon be present in order for the bowel to intussuscept through the defect in the pelvic floor. The mobilization, elevation, and fixation of the rectum as described, along with maximal resection of the sigmoid colon, leaves a very short left colon with minimal mobility, firmly supported proximally by the phrenocolic ligament (Fig. 4). Of the weaknesses or abnormalities required to produce rectal prolapse, the only factor that can be controlled with any degree of certainty is the length of the left colon. Stress and strain may break down the rebuilt rectal supports and deepen the cul-de-sac, but the configuration of the straight left colon will not change. Without slack and mobility in the left colon the rectum cannot descend and the rectal prolapse cannot recur.

The low anterior resection recommended by Muir[5] for the treatment of rectal prolapse utilizes the fibrosis between the anastomotic suture line and the sacrum to provide additional support for the rectum. A low end-to-end anastomosis between the dilated rectum and the smaller proximal sigmoid colon makes the procedure technically more difficult and time consuming. This additional support should not be necessary if sufficient left colon is resected. An anastomosis at any convenient site proximal to the rectum is much simpler and can be done more quickly.

It would be difficult to improve upon the reported results of Altemeier and associates[13] in the treatment of rectal prolapse. The perineal amputation and perineal repair in their hands have shown very few recurrences. The long-range results of perineal rectosigmoidectomy, however, have proved to be disappointing. Thompson[14] in reporting the large St. Mark's Hospital series, showed an ultimate recurrence rate of 60% in cases followed over an extended period of years.

The surgical procedure for the treatment of rectal procidentia described in this paper is designed primarily for use in those individuals whose general physical condition justifies a radical approach. Clinical judgment must determine the proper operative procedure to be selected for each individual patient. When major surgery is contraindicated because of the poor physical status of the patient, more conservative measures should be used. Thiersch's operation, perineal amputation of the prolapsed rectum, or other perineal procedures are safer for the aged, poor-risk patient and may be adequate for their life expectancy. With the good-risk individuals, however, the operation which has the greatest potential for permanently curing the rectal prolapse should be recommended.

SUMMARY

Twenty-three cases of rectal procidentia are presented which have been treated by laparotomy with elevation and fixation of the rectum, obliteration of the deep cul-de-sac, plus primary resection of the excess sigmoid colon with end-to-end anastomosis.

It is believed that recurrence is virtually impossible if all of the excess left colon is resected along with the other reparative procedures. The maximal shortening of the sigmoid colon will hold the rectum in its normal position, since the straight left colon, firmly supported proximally by the phrenocolic ligament, has very little mobility and cannot slide. Stress and strain may break down the rebuilt rectal supports and deepen the cul-de-sac, but the configuration of the straight left colon will not change. Without slack and mobility in the sigmoid colon, the rectum cannot descend and the rectal prolapse cannot recur.

This procedure is designed primarily for use in those individuals whose general physical condition justifies a radical approach to give the best chance for permanent cure. With the aged and debilitated patients or when major surgery is contraindicated, the more conservative perineal procedures are used.

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Treatment of Cancer of the Colon and Rectum

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AT THE PRESENT TIME surgery is the only treatment that offers a reasonable chance of cure for cancer of the colon and rectum. Other modalities, particularly x-ray and chemotherapy, have value in the palliative management of patients with these lesions, but such methods are not curative and should not be used primarily in any patient who has a chance of being cured.

PRINCIPLES OF CANCER SURGERY

Certain considerations that apply to cancer surgery generally have specific applications in surgery of the large bowel.

Most fundamental of these considerations are: (1) wide removal of the organ in which the cancer arises, which means a segment of bowel with wide margins on either side of the tumor, and (2) wide removal of the lymphatic drainage system of the segment of the bowel involved. This, in general, corresponds to the vascular supply.

While no operation has yet been devised to remove the organs to which tumor cells may spread by way of venous emboli, tumor emboli may be minimized by manipulating the tumor as little as possible preoperatively and at the time of operation. Tumor emboli may also be minimized by early ligation of the blood supply of the involved segment when feasible before manipulating the tumor.[1]

When cancer involves the serosa of the bowel, free tumor cells are found with great regularity in the peritoneal cavity immediately upon entering it before any exploration has been done.[2] Thus while exfoliation of cancer cells, some of which may be viable, cannot be eliminated, further contamination may be decreased by handling the tumor as little as possible; by covering the tumor when feasible;[3] by careful protection of adjacent structures with pads, particularly covering the wound edges with multiple thicknesses of pads; and by packing away other viscera from the operative field with pads. These protective pads should not be removed until the procedures has been completed.

The presence of free cancer cells in the operative field after completion of the resection is usual. What the potential fate of these cells is, has not been established with certainty. It is possible that at least some of them may implant in the raw wounds left by surgery and grow into clinically significant cancer. Many efforts have been made to kill these cells with the local use of various chemical agents.[4] To date we are not aware of any chemical agent that has proved more effective than simple mechanical irrigation of the operative field with large quantities of saline or distilled water. Where feasible, we believe this is a worthwhile procedure at the completion of an operation for bowel cancer.

CURRENTLY ACCEPTED OPERATIONS

Right hemicolectomy is indicated for cancer of the cecum, ascending colon, and proximal transverse colon. There are at least 2 essentials in an adequate right hemicolectomy for cancer: (1) excision of at least 18 in. of the terminal ileum and its mesentery, because recurrences in the ileal mesentery at the ileocolic anastomosis are seen too frequently, and (2) ligation of the blood supply, that is the right colic and the mid colic, close to their origin from the superior mesenteric vessels. This requires adequate visualization and transillumination to identify these structures properly.

In the ordinary good-risk patient with cancer of the mid transverse colon, right hemicolectomy with removal of the bowel to the mid descending colon is indicated. In poor-risk patients segmental resection with removal of the midcolic vessels and preservation of the right colic is a workable compromise.

Left hemicolectomy[5] is indicated for carcinoma of the distal transverse colon, splenic flexure, and descending and sigmoid colon. Left hemicolectomy includes removal of the entire distal transverse colon, descending and sigmoid colon, ligation of inferior mesenteric vessels, and midcolic, with anastomosis between the mid trans-

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verse colon and the rectosigmoid at or just below the peritoneal reflection. This may be modified to some extent depending on the location of the lesion. Thus for distal transverse colon the inferior mesenteric and its sigmoid branches may be preserved taking the left colic. With lesions in the lower descending colon or proximal sigmoid, the main midcolic vessels may be preserved. In preserving the before-mentioned vascular supply it is usually possible to preserve enough sigmoid to effect an intraperitoneal anastomosis for the higher lesions, whereas for lower lesions an extraperitoneal anastomosis to the rectum is necessary.

In poor-risk patients or those who are very obese with much intraperitoneal fat, segmental resection of lesions in the proximal or midsigmoid, particularly when this portion is very redundant, is usually a workable compromise.

Anterior resection with primary anastomosis of the proximal sigmoid or descending colon to the extraperitoneal rectum is indicated for cancer of the distal sigmoid and for many of the lesions of the upper rectum lying 7 cm. or more above the anal verge as measured preoperatively.

At the present time there does not seem to be much controversy regarding the employment of some type of sphincter-preserving operation for the distal sigmoid lesions that are well above the peritoneal reflection. The controversial area regarding sphincter preservation is roughly just above and below the peritoneal reflection: lesions in the area that measure between 7 and 13 cm. above the anal verge on preoperative proctoscopic examination.

In our opinion, the criteria for performing a sphincter-preserving procedure in this region, after one has performed an intra-abdominal and pelvic dissection that is the same as one would do for an abdominoperineal resection, are: (1) an adequate margin of 4 to 5 cm. below the tumor as the site of transection of the bowel, (2) adequate blood supply of the distal segment, and (3) ability to perform a technically satisfactory anastomosis.

In our experience,[6] as well as in others,[7] equally good results in terms of five-year survival for lesions at similar levels and of similar extent of disease within the area specified, are obtained with either anterior resection and primary anastomosis or combined abdominoperineal resection. We find that with the lower lesions in males we do more abdominoperineal resections than we do anterior resections because of the configuration of the male pelvis.

For some time we did a considerable number of abdominoperineals of the "pull-through" type for the lower lesions in the males. We do very few now because of the much poorer functional results these patients had.

Combined abdominoperineal resection of the rectum is indicated for cancer of the mid- and lower rectum and the anal canal. The essential features of this procedure are ligation of the inferior mesenteric vessels just below the left colic, wide removal of the pelvic structures with wide transection of the so-called lateral stalks containing the middle hemorrhoidal vessels, dissection of the mesorectal structures cleanly off the presacral fascia, wide perineal excision of skin, and transection of the levators at their pelvic attachment. If abdominoperineal resection is necessary because of the low location of the cancer there is no place for a "shoehorn" perineal phase.

EXTENDED PROCEDURES

In the effort to improve the cure of cancer of the colon, a number of extended surgical procedures have been devised and given more or less thorough clinical trials.

At least one of these has been included under the discussion of accepted procedures, the left hemicolectomy as a procedure comparable to right hemicolectmy[5] for cancers of the distal transverse colon to the sigmoid. The published results suggest the advantage of this procedure.

It has been suggested[8] that left hemicolectomy be added to combined abdominoperineal resections for cancer of the rectum, as this would insure removal or greater lymphatic drainage. The only published report of five-year survival following the combination of left hemicolectomy to abdominoperineal resection for cancer of the rectum[5] indicates some improvement but this was not statistically significant. We do not employ it because it may leave the patient with a permanent transverse colostomy instead of a sigmoid colostomy. It is much easier for the patient to care for a relatively dry sigmoid colostomy than a relatively wet transverse colostomy.

High ligation of the inferior mesenteric vessels[9] for cancer of the rectum and sigmoid has also been suggested by several, the purpose being to insure removal of more of the lymphatic drainage pathways. We are not aware that the comparative results obtained by this addition have been published by its proponents. Until the value of high ligation is established it can usually be readily effected along with resection of sigmoid lesions without any ill effect if an anastomosis is possible. However, when high ligation of the inferior mesenteric vessels is employed in the treatment of rectal lesions the colostomy may have to be as high as the transverse colon which, as stated previously, is harder for the patient to care for. Furthermore, as a matter of fact, when lymph node metastases from cancer of the rectum are present at the usual level of ligation, that is, the superior hemorrhoid just below the left colic, practically no patient is salvaged. We are not sure that this will increase survival rates until data regarding it have been published.

Extended pelvic and abdominal lymphadenectomies have been suggested.[10] Pelvic lymphadenectomy consists of a meticulous and time-consuming dissection of lymph node-bearing tissue from the bifurcation of the aorta, along the common, external, and internal iliac vessels and the obturator space. In the performance of this dissection the ureter is mobilized from above the pelvic brim to the entrance into the bladder in the course of which its blood supply is sometimes compromised, as is the blood supply to the base of the bladder. Abdominal lymphadenectomy is not as tedious or time-consuming, consisting simply of removal of tissue about the aorta and vena cava for a variable cephalad extent. To date, published results have been concerned with pelvic lymphadenectomies primarily.[11] These procedures have added considerably to the morbidity of the acepted operations, in view of which the improvement in salvage has not been sufficient to justify, at least in some minds, their routine addition in the treatment of these cancers at the present time. It is to be hoped that evaluation of the procedure will continue in some centers until sufficient data have been accumulated to provide a final answer as to its value.

Routine resection of adjacent viscera. In an effort to increase the extent of tissue removed adjacent to a tumor, routine resection of adjacent viscera has been advocated.

Routine hysterectomy and vaginectomy[12] has been suggested for all low-lying anteriorly situated cancers of the rectum. In view of the lack of recurrence we see in the vaginal vault when the lesion has not invaded the rectovaginal septum, we do not believe this is a necessary routine. However, it should certainly be done when there is any fixation to the vaginal septum or adherence to the uterus.

Oophorectomy[13] in females has been urged for cancer of the rectum and sigmoid, as the incidence of ovarian metastases, gross and occult, has been reported from 3 to 8 percent. Certainly, in the postmenopausal woman it can be done without any significant effects or complications. In the premenopausal woman it must be recognized that there is no proved beneficial effect on survival of oophorectomy for patients with cancer of the colon or rectum. Also, it does produce decided physiological effects, which in individual cases may be of greater or lesser importance. In these younger women, these effects must be weighed against the incidence of ovarian metastases, and the decision regarding oophorectomy must be based on this alone.

Prostatectomy and vesiculectomy have been suggested on theoretical considerations for anteriorly situated cancers of the rectum that are adjacent to these structures. To accomplish this the formation of an artificial bladder would usually be required, with all of the immediate and subsequent problems attendant theron. Furthermore, unless Denonvillier's fascia has been penetrated, recurrence in the prostate is seldom seen unaccompanied by other recurrent pelvic disease. We would not advocate this addition as a routine. Certainly, however, when the prostate is directly invaded by cancer, in the absence of evidence of distant metastasis, the prostate and bladder should be removed; partial prostatectomy has not proved curative in this situation.

Omentectomy has been advocated in the presence of any carcinoma of the intraperitoneal colon because of the seeming frequency with which at reoperation the omentum contains the bulk of recurrent disease. It can be accomplished with little additional effort and no morbidity and may occasionally remove the only residual cancer.

Splenectomy and removal of the tail of the pancreas has been advocated as a routine procedure for lesions of the splenic flexure. Anatomical studies[14] allegedly have shown the lymphatic drainage from this portion of the colon to these structures. While we have not given this an extensive trial, we have done it often enough to learn that it was not an innocuous procedure. Moreover, we did not happen to select cases that had metastases to these organs. We do not believe it should be added routinely to resections of the splenic flexure.

ADJUVANT THERAPY

No one truly interested in cancer of the colon and rectum is satisfied with the present treatment. Above-described efforts to extend the accepted surgical procedure have not proved highly effective in improving survival of patients having this disease. In searching for other methods it was natural with the advent of chemotherapy to attempt some method of combining chemotherapy with surgery preoperatively, during operation, or postoperatively. A great deal of effort has gone into these clinical experiments.[4,15,16] At the present time, no effective agent or method has been demonstrated to effectively improve survival above that achieved with operations described as currently accepted, while some of the methods used have increased the morbidity and mortality rates considerably. More effective chemicals undoubtedly will be developed in the future and will be evaluated as they appear.

Roentgen ray therapy.[17] In searching for adjuncts to improve our results of surgery, we reviewed the experience we had with preoperative x-ray therapy and found that in a large series of patients the five-year survival had been materially improved in those with cancer of the rectum who had lymph node metastases at the time of operation and had been given preoperative x-ray, compared with those who had not had x-ray. This improvement was accomplished without increased morbidity or mortality. Preoperative x-ray did not affect survival in those patients who did not have lymph node metastases at the time of operation. The total tumor dose was less than 2000 r. At the present time we are reevaluating this adjunct not only in cancer of the rectum but also of the colon and in other locations. Until further evaluation has been effected by others, as well as ourselves, we believe that this is an adjunct that can be employed without increasing the morbidity or mortality or adding any other detectable risk, and it does appear to increase the survival of those who have the poorest outlook with surgery alone.

SUMMARY AND CONCLUSIONS

1. At the present time the most effective method of treating cancer of the colon and rectum is surgery.

2. The important principles of cancer surgery as applied to the bowel include: wide removal of the bowel on either side of the tumor, wide removal of the lymphatic drainage system, minimization of tumor emboli by limiting manipulation of the tumor and early ligation of the vascular drainage, and limitation of the contamination by free cancer cells of the surrounding structures and abdominal wall by covering of the tumor with protection of these structures by pads and irrigation of the wound where feasible.

3. Currently accepted procedures for different portions of the bowel include: right hemicolectomy for carcinoma of the cecum, ascending colon, proximal and mid transverse colon; left hemicolectomy for distal transverse colon and descending and sigmoid colon; anterior resection for sigmoid and upper rectum when technically satisfactory; abdominoperineal resection for mid- and lower rectum and anal canal.

4. A number of extended procedures are being evaluated which have not yet been shown to improve statistically results obtained by standard procedures when added routinely. They are certainly of value, however, when indicated in specific circumstances.

5. Adjuvant therapy is being investigated thoroughly. Chemotherapy as an adjunct has not been thoroughly evaluated but preliminary reports indicate that with currently employed agents morbidity and mortality have been increased. Preoperative x-ray treatment has been used without any increase in morbidity or mortality and would appear to improve survival in those patients having the poorest prognosis.

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Chemotherapy of Colon Cancer

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THE RECENT ADVANCES in the chemotherapy of malignant disease have altered significantly the concept of control of colon carcinoma. In the past, surgical removal of the tumor was deemed the only means of attempting a "cure" of this disease. To date this remains the primary treatment of choice. Irradiation therapy has been employed as a palliative therapy.

Though chemotherapy was extensively used beginning fifteen years ago, no significant success was attained in colon cancer until the advent of the fluorinated pyrimidines. The alterations of cancer growth by these agents placed colon carcinomas in the category of cancers that can be effectively controlled by chemicals.

CRITERIA OF EFFECTIVENESS OF CHEMOTHERAPY

The introduction of chemotherapy in the treatment of disseminated colon carcinoma was associated with difficulty in evaluating the effectiveness of these agents. The effect of a chemotherapy is usually evaluated by subjective and objective responses. On admission to a hospital, a patient frequently will note subjective improvement unrelated to specific therapy. Many chemotherapeutic agents will produce pain relief and a sense of well-being, though they will have no immediate effect on the cancer. For these reasons, subjective improvement cannot be considered as a criterion for evaluating the effectiveness of a chemical therapy. Because of the difficulty in evaluating tumor response, it was necessary to adopt more strict criteria of improvement. One method was established by Ansfield and Curreri which has been rather widely adopted by other investigators.[1] These criteria include: (1) measurable reduction of a tumor mass by at least 25% in size, (2) subjective improvement, (3) leveling off or reversal of a downward weight curve, (4) improvement in performance status, and (5) presence of all of these for not less than two months.

By these criteria, only measurable lesions can be considered in the evaluation of a new agent. It would appear that these are minimal criteria but are weighted toward the subjective factors. Other investigators have been more rigid in the criteria of evaluation and have demanded at least a 50% regression or shrinkage in size of a tumor mass before regarding an agent as effective.[2] Agents with anti-inflammatory action can produce an apparent reduction in tumor size by decreasing the inflammatory cells sometimes present about the tumor but without altering the cancer cells.

A chemical agent may produce a definite shrinkage of a cancer mass and meet the above criteria. However, during the administration of some agents, the morbidity produced in patients not responding to therapy may be severe. This damage to the nonresponding patient may result in a decreased survival time. Thus, the effect on the nonresponding patient must be considered in evaluation of a chemotherapeutic agent.

The determination of the survival time from the initial treatment of the primary tumor to death and the survival time from the onset of chemotherapy to death are important factors in evaluation of an agent. The survival time for both the responders and nonresponders must be considered. An agent that would cause an objective regression of the tumor but failed to significantly prolong the survival time would not appear to be an effective agent. In this evaluation of the survival time of patients with advanced colon carcinoma, the normal pattern of growth of the cancer is important.

The criteria of improvement of a colon carcinoma in response to a chemotherapeutic agent should, therefore, include several factors: (1) The normal growth pattern of colon carcinoma should be considered. (2) A decrease in tumor mass size is the primary criterion for assessing response; a tumor mass should decrease by at least 50%. The "shrinkage" of a tumor for a brief period (less than two months) with rapid exacerbation of growth cannot be regarded as an improvement, even though such observations are significant. (3) The evaluation of a chemical

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should consider the morbidity and mortality produced by the chemotherapeutic agent. Survival time from chemotherapy to death must be significantly greater for the patients who respond to therapy. (4) Comparison to a control group is desirable.

CHEMOTHERAPEUTIC AGENTS

The practical chemotherapeutic agents in colon carcinoma are those of the fluorinated pyrimidine group. Many other agents have been evaluated and occasionally objective criteria have been noted. However, the rate of improvement is so low with these agents that their consideration as practical agents is not necessary.

The mortality with many newer chemotherapeutic agents is greater than in some surgical procedures. Considering that many of the patients are debilitated and poor risks, a higher mortality is to be expected. Though attempts are made to decrease the mortality of an effective agent, the occurrence of a high mortality rate does not preclude the use of the compounds.

Fluorinated pyrimidines. Following the observations that uracil was utilized for nucleic acid biosynthesis to a greater extent in induced and transplanted rodent tumors than by most normal tissues, an attempt was made to prepare an antimetabolite that would resemble uracil. Accordingly, 5-fluorouracil (5-FU) was synthesized and proved to have activity against a multiple number of tumors. Subsequently, a nucleoside, 5-fluoro-2′-deoxyuridine (FUDR) was prepared. Both 5-FU and 5-FUDR have proved to be effective in colon carcinoma. Extensive reports regarding the effectiveness of these agents have been evaluated recently.[3]

The selection of a patient for therapy by the fluorinated pyrimidines is of critical importance. Terminal patients are not candidates for fluoropyrimidine therapy, since they cannot tolerate adequate courses of therapy and, thereby, cannot be expected to respond to the agent. Patients classified as poor-risk patients have one or more of the following factors present: (1) protein loss or impaired protein intake, (2) extensive liver metastases with jaundice, (3) extensive pelvic irradiation prior to chemotherapy, (4) previous use of alkylating agents, and (5) extensive osseous metastases. These poor-risk patients are not treated, or if they are, adjusted doses of medication are given.

In good-risk patients, 5-fluorouracil (5-FU) has been employed at a dose of 15 mg. per kilogram of body weight given daily for five days and then one-half dose of 7.5 mg. is given every other day, to the point of slight toxicity. The maximum daily dose is 1 gm. Slight toxicity consists of minimal stomatitis or diarrhea. If a decrease in the white blood count occurs, the therapy should be interrupted. It is recommended that the white blood cell counts be done before the fifth and every succeeding dose.

In the case of FUDR, a dose of 30 mg. per kilogram is injected rapidly intravenously for five days followed by 15 mg. per kilogram every other day for eleven such half-doses unless toxicity intervenes. Only a limited number of patients have been treated.

Alteration in toxicity has been reported by continuous intravenous infusion. With 5-FU, there is less toxicity by continuous intravenous infusion than found after rapid intravenous injection. However, there appears to be a discrepancy with respect to the number of reported remissions that occur following this therapy.

The severe toxic reactions of the fluorinated pyrimidines require that a physician be familiar with the methods of cancer chemotherapy. Toxic manifestations of fluorinated pyrimidines involve damage to normally proliferating tissues which is to be expected from compounds that inhibit DNA biosynthesis. The toxic manifestations should be clearly defined to a patient about to undergo therapy. The following is the sequence of reactions that occur following the administration of 5-fluorouracil. Initially there may be nausea and vomiting. The development of stomatitis and/or diarrhea are the signs that are regarded as signals for stopping therapy. During the period of diarrhea, there is extensive plasma loss from the gastrointestinal tract and efforts should be made to insure an adequate fluid intake during this phase of therapy. Failure to do so will result in decreased blood volume, vascular collapse, and even death. Occasionally, a dermatitis may be seen. The second week following a course of therapy is relatively mild. During the third week, fever and malaise occur. Leukopenia is frequent, occurring in more than 50% of the patients treated (Fig. 1). A decrease in platelets is noted but, as a rule, not to excessively low levels. A later change is partial or complete alopecia. Changes in the nails may denote interference of nail growth at the time of the administration of the chemical.

In a recent review, Heidelberger and Ansfield tabulated 27 reports from the literature.[3] It was evident that the most responsive lesions to 5-fluorouracil were those from the gastrointestinal tract, breast, and female genital tract. This drug was of little benefit to patients with leukemia or lymphomas. In a total of 1,041 gastrointestinal carcinomas, 308 patients showed a clinical im-

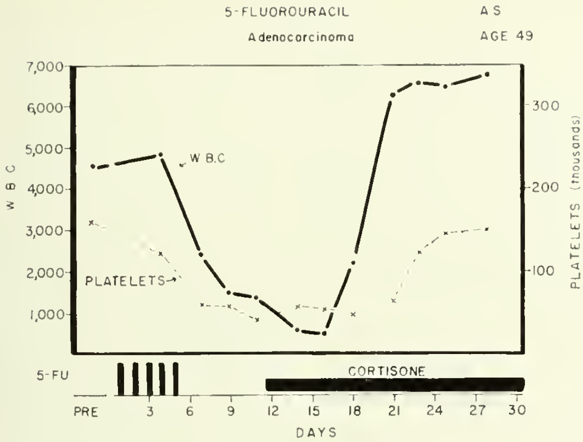

Fig. 1. Decrease in platelets and white blood cells following 5-fluorouracil therapy. Cortisone does not aid the rate of recovery.

provement. These included carcinomas of the esophagus, stomach, pancreas, and colon. The percentage of regression noted in these reports was variable and does relate to the varying criteria employed in establishing improvement.

It would appear that objective improvement occurs in approximately 20% of patients with carcinoma of the colon treated by 5-fluorouracil.[3,4] Many authors emphasize the transient nature of the responses. A few patients have had remissions up to fifty-five months from the onset of chemotherapy. Because of the wide variables involved in establishing the duration of regression, the published data regarding this are incomplete.

At University of Minnesota Hospitals, 5-fluorouracil was administered to 22 patients with advanced colon carcinoma. An objective improvement occurred in 2 patients (9%). In one of these, a supraclavicular mass decreased by 50% and in the second, the abdominal nodules were smaller when the abdomen was reexplored. Subjective improvement was noted in 7 patients, including the 2 that had objective improvement.

The survival of the 2 patients that improved was fourteen and twenty-eight months. Average duration of survival for the 20 patients that did not improve was 4.6 months, with the range extending from one to sixteen months. The average survival of the series was 6.1 months. It is of interest to note that only 3 patients survived more than nine months, and 2 of these were those that improved from the therapy. With these small data, one can make no conclusions regarding the significance of this survival data.

The fluorinated pyrimidines introduced a significant alteration in the concept of the control of colon cancer. This was the first group of chemicals that induced objective remissions in colon cancer to any significant degree. Though the objective remission rate is approximately 20%, some investigators regard this as being too high and consider a figure of approximately 10% more realistic. 5-Fluorouracil is of definite though very limited value in the palliative management of patients with advanced colon carcinoma.

SUPPORTIVE CHEMOTHERAPY

In the care of the patient with advanced colon carcinoma, additional benefit can be provided the patient by the use of supportive chemotherapeutic agents. Cortisone in moderate doses will stimulate the appetite, increase the sense of well-being, and decrease inflammatory reactions. As long as the patient has an adequate protein intake, the adrenal steroid hormones are of value. If the patient's protein intake is low, the catabolic effect of the adrenal steroid continues to damage the normal tissue and a more rapid weight loss could ensue. Steroids in this instance are contraindicated. Androgenic hormones have also been employed in small doses in order to stimulate anabolism. This again may provide subjective improvement without objective changes.

The occurrence of ascites or pleural effusions can be effectively controlled by the use of a strict diuretic regime. Moderately low salt diet can be employed as long as it does not interfere with the total caloric intake of the patient. A combination of aldactone and hydrodiuril (Aldactazide-A) has been effectively employed in the effusions due to malignant disease.

SUMMARY

Advanced or recurrent carcinoma of the colon has been added to those tumors amenable to chemotherapy. Even though the present available agents are of only limited value in treatment, these improvements provide a stimulus to the concept that colon cancer can be one of the tumors more effectively controlled by chemical agents in the future. Currently, selected patients should be considered for chemical therapy.

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Proctologic Problems in Children

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THERE HAS BEEN considerable progress in the understanding and recognition of the conditions of the colon, rectum, and anus in children.

The following information results from the author's observations (1) on the anatomy of the terminal bowel,[1] (2) methods of examination and armamentarium,[2] (3) barium x-ray enema studies, and (4) analysis of 2,917 pediatric proctologic cases.[3,4]

ANATOMY

The anatomy of the terminal colon has peculiarities during the various periods of the child's early years. For this reason it is convenient to consider 3 stages in the normal child's growth. These periods are: (1) newborn or anatomic age A—from birth through the third month, (2) infancy or anatomic age B—from the fourth month through the second year, and (3) childhood or anatomic age C—from the third year and older.

Because there are different normals in these anatomic ages, clinical conditions are peculiar to these periods. A comparison of the rectums and ani of the 3 stages of childhood growth and the adult is shown in figure 1. Note the height of the rectosigmoid junction in the different ages.

PROCTOLOGIC EXAMINATION

Because of the difficulties formerly encountered in the proctologic examination of children many examiners were discouraged and disinterested. Now there exists an organized approach to the proctologic examination so that more children are being observed. The author has described the preparation, position, special table, and instruments used to simplify this examination (Fig. 2).[2]

The most important single factor for the successful examination is the position as shown in figure 2. The child is comfortable and the anoscopes and proctoscopes for the respective age groups are introduced with ease. Children over 5 years are examined in the same manner as adults. The examination is preceded by cleansing enema and no food. Rarely is it necessary to give sedation or general anesthesia for the proctologic examination.

An immense amount of intra- and extrarectal information can be gained from the digital. In the newborn age A, the anal canal possesses sufficient elasticity and distensibility to permit the introduction of the small finger. In children over 1 year of age, the index finger will enter the anus readily.

CONGENITAL ABNORMALITIES

The management of the congenital anomalies of the anorectum has improved considerably because many surgeons report their experiences. As a result more statistics, other classifications, and better treatment of these anomalies are available. If one understands the fundamental steps in the embryology of the anorectum, one can almost visualize the various defects which might result from arrested or faulty development. Deformities develop from arrested development of the rectum or as a result of imperfect obliteration of the proctodeal membrane thus preventing continuity with the rectum. This point of union with the rectum, the dentate line, is an extremely important landmark. Surgically it is important to know that the anal orifice and external sphincter arise from the proctodeum and mesoderm and that this sphincter is present and will function normally.

Ever since Bodenhamer in 1860 stated that these malformations occurred in about 1 of 5,000 to 10,000 children, writers have continually repeated this figure. In a report by the author,[5] more definite figures became available. In table 1 there is a composite figure of the occurrence of anorectal anomalies. A ratio of 1 in 1,675 children is shown; this is quite different from the often-repeated old figure.

Table 2 shows the occurrences of the different types of malformations. Of the 97 patients in

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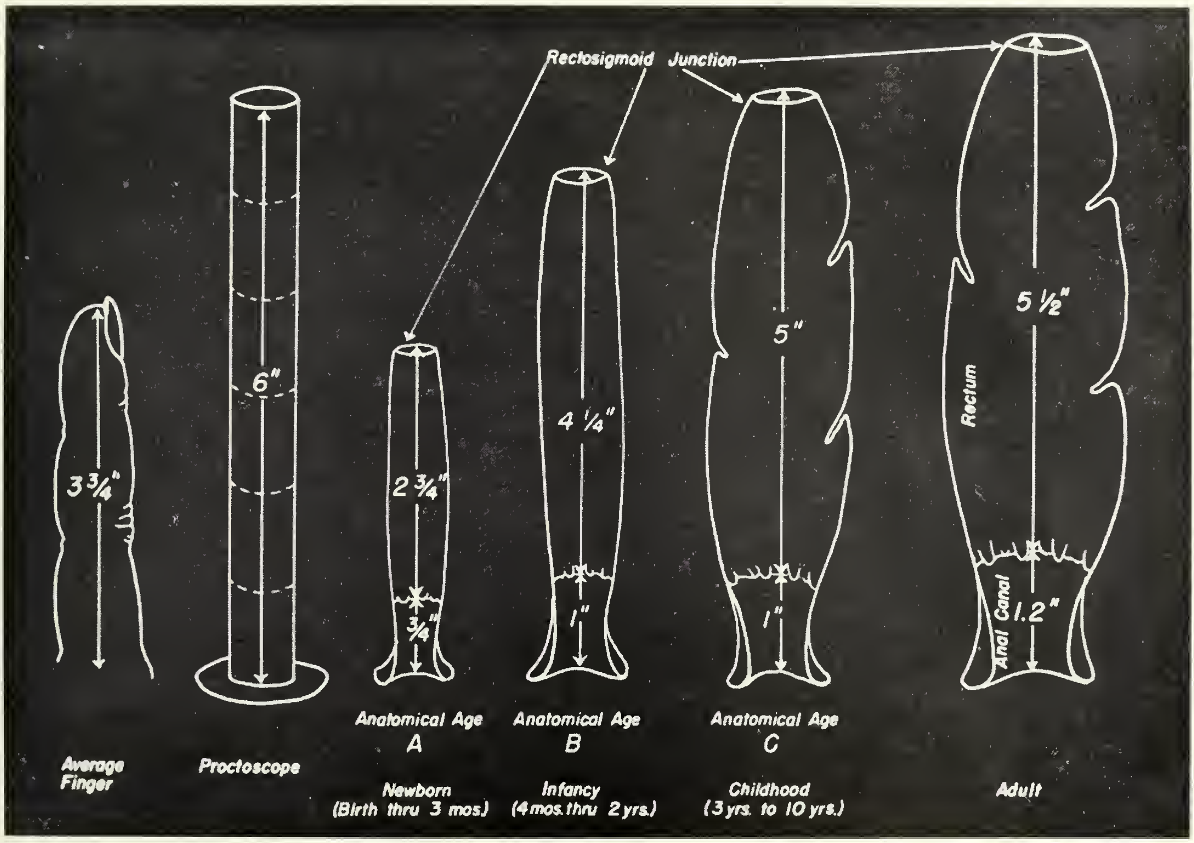


Fig. 1. Comparison of rectum and anus in 3 stages of childhood growth and in adult

my series, 49 had type III malformation. Observe the frequency of types I and II. Apparently these are more common than we had believed.

Table 3 shows the occurrence of fistulae. In the male child there may be complete absence of an anal opening with no exit for either flatus or meconium; an outlet into the adjoining bladder or urethra may be present. The passage of the flatus through the urethra may delay recognition of the fistula for some days. In the female there may be complete atresia of the anus with an opening into the vagina which provides an outlet for flatus and feces, delaying its recognition for weeks after birth. In infants with complete nonabsorbed occlusion of the anus it is important to know the height of the rectum. For accurate determination of its position, x-rays using the Wangensteen and Rice technique with the infant in the inverted position are made the second day. The recognition of the type of anomaly is important before treatment. For this rea-

TABLE 1

INCIDENCE OF CONGENITAL ANOMALIES OF ANUS AND RECTUM

Authors	*Hospital admissions*	*Number of cases*	*Ratio*
Eight[5]	591,604	325	1:1,820
Schapiro	115,398	97	1:1,189
Total	707,002	422	1:1,675

TABLE 2

OCCURRENCE OF CONGENITAL ANOMALIES OF ANUS AND RECTUM

(Classification of Ladd and Gross)

Authors	*Type I (Stenosis)*	*Type II (Unabsorbed anal membrane)*	*Type III (Blind rectum)*	*Type IV (Blind rectum, blind anus)*
Fourteen[5]	111	234	739	36
Schapiro	27	21	49	0
1,218 patients	138(11%)	255(20%)	788(62.5%)	36(2.9%)

TABLE 3

OCCURRENCE OF FISTULAE IN ANOMALIES OF ANUS AND RECTUM

		Types of fistulae			
Authors	*Fistulae*	*Recto-perineal*	*Recto-vaginal*	*Recto-urethral*	*Recto-vesical*
Fourteen[5]	412	60	211	77	62
Schapiro	12	2	6	2	2
Totals	424	62	217	79	64

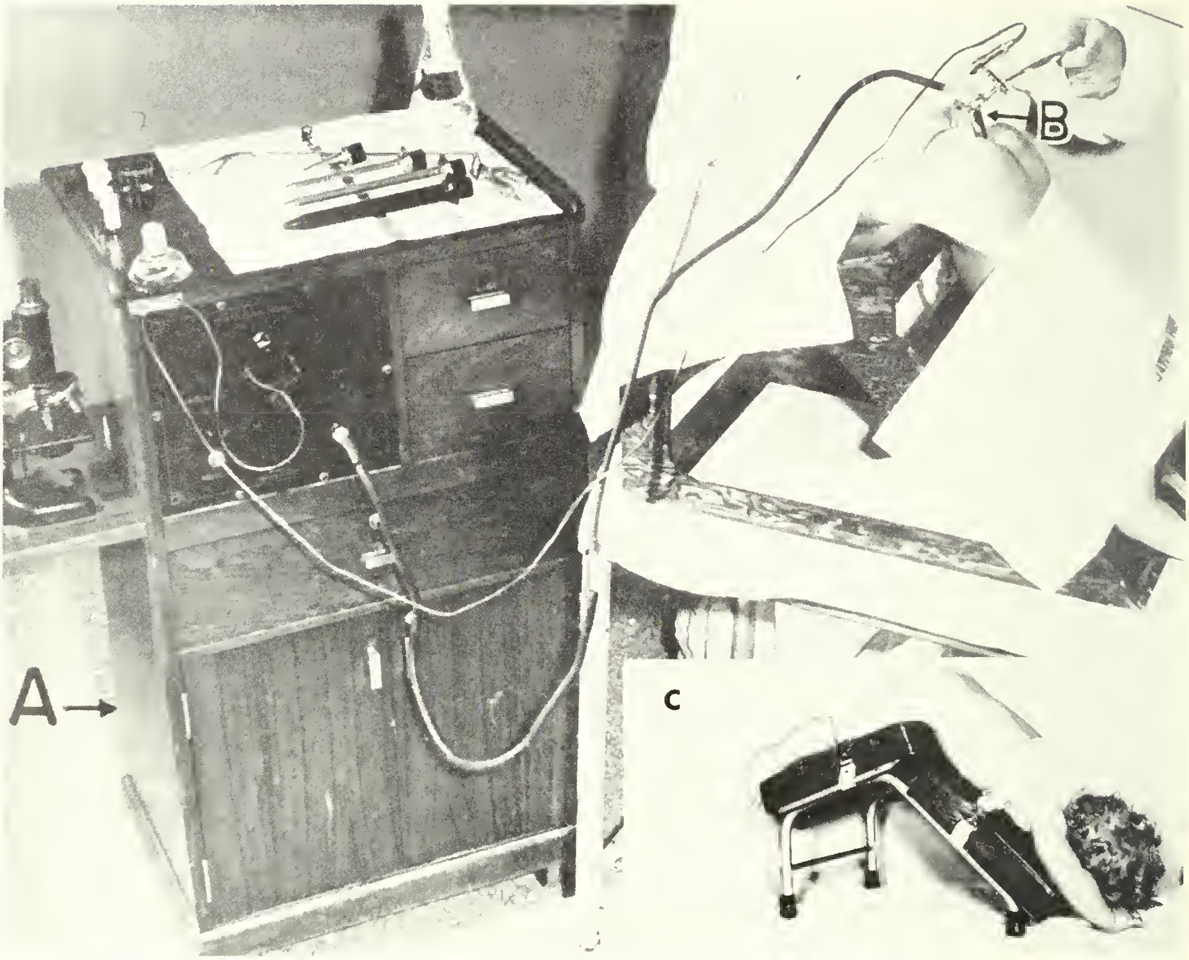


Fig. 2. Pediatric proctologic examination. Infant in position on pediatric proctologic table with sigmoidoscope (B) in place and attached to author's proctologic diagnostic unit (A).[10] Sigmoidoscopes for ages A, B, and C are on top. (C) Author's new table

son a simple regional classification of the anomalies of the anorectum had been offered by the author (table 4).[5]

POLYPS AND POLYPOSIS

Polyps. The adenomatous polyp and juvenile polyp of the rectum and colon occur frequently and are among the commonest causes of rectal bleeding. Recently Morson[8] and Knox[9] have distinguished between the juvenile polyp and the adenomatous polyp in children. Both describe the juvenile polyp as the most common in children, and both state that juvenile polyp differs from the adenoma in gross and microscopic characteristics, the adenoma supposedly occurring infrequently in the child. Although there is a definite pathological difference between the two, there is no difference between them clinically and in their prognosis.

Polyposis. Polyposis can be classified as follows: (1) acquired multiple polyposis disseminated (adult type), (2) acquired multiple localized (both), (3) congenital disseminated, familial, and (4) polyposis with colitis.

In contrast to the adult acquired multiple polyposis, the disseminated polyposis of infancy is usually congenital and familial. Duke's[6] analysis of 22 families proved this is a hereditary disease. It is important, therefore, to examine other members of the family. Treatment consists of total or subtotal colectomy with fulguration of rectal polyps. Hubbard[10] has observed that the polyps of the rectum in some patients regressed following subtotal colectomy and ileorectal anastomosis.

CLINICAL OBSERVATIONS ON POLYPS

These polyps are not considered congenital because only 4 were found in the examinations of 1,381 newborns (age A). Few polyps protrud-

TABLE 4

REGIONAL CLASSIFICATION OF THE CONGENITAL ANOMALIES OF THE ANORECTUM

Site AO—Anomaly at the anal orifice
1. Partial occlusion at the anal orifice
2. Complete occlusion at the anal orifice
3. Abnormally placed anal orifice (structures normal)

Site AC—Anomaly in anal canal
1. Complete occlusion
2. Partial tubular occlusion without fistula
3. Partial occlusion with fistula
4. Partial occlusion with secondary fissure

Site ARJ—Anomaly at anorectal junction
1. Partial membranous occlusion (stenosis)
2. Complete membranous occlusion
3. Failure of union between normal anal canal and normal rectum

Site R—Anomaly of rectum
1. Abnormal descent of rectum (arrested development of rectum)
    a. Occlusion of rectum (without fistula)
    b. Occlusion of rectum (with fistula)
        1. With internal communications, fistulas high lying
        2. With external communications, fistulas low lying
2. Absent rectum (anus present ending blindly at ARJ)

ed from anal orifices, and many were felt by the examining finger. A relationship with intussusception was not established; only 2 cases were noted. There were no secondary anemias. After being seen by us, none of the polyps were spontaneously expelled because of autoamputation. In the development of the juvenile polyp, irritation by stool causes hyperplasia of the surface epithelium of the normal redundant mucous membrane. By contrast, the adult polyp arises by proliferation from the crypts of Lieberkühn. Perhaps this difference of origin explains why the adult adenoma can become malignant and the child polyp does not. Very few are sessile, and none have shown malignant changes.

COLITIS

The opinion regarding the etiology and treatment of chronic ulcerative colitis seems to be narrowing. The many therapeutic methods are based on one of the following: (1) infection, (2) nutritional deficiency, (3) lysozome effect, (4) proteolytic enzyme effect, (5) psychiatry, and (6) allergy.

The ameba and bacillary dysentery are accepted specific infections. Doubtful infection factors are the streptococcus, diplostrepto, and so on. In the nonspecific types, treatment depends on symptomatic relief, rest, and diet.

Chronic ulcerative colitis presents a serious problem. The great reparative capacity of the tissues of the child introduces an element of hope. However, one cannot expect that spontaneous cure will occur except in the mild cases. Since the disease is more severe in the child one should be cautious about continuing medical treatment too long, especially when the patient can be restored to health either by ileostomy or by pancolectomy and ileostomy. We have had a total of 343 cases of colitis in children (table 5).

In view of the personality problems found in some children with ulcerative colitis, psychiatric states are considered as etiological factors. Eleven of our patients were classified as having primary psychiatric colitis, compared with those who develop psychiatric states after colitis from other causes and are classified in the secondary

TABLE 5

CONDITIONS IN 2,917 PATIENTS AND OCCURRENCE IN 3 AGE GROUPS

Diagnosis	*Total cases*	*Newborn (birth to 3 mo.)*	*Infant (4 mo. to 2 yr.)*	*Child (3 yr. and over)*
Abscess: perianal (20) and ischiorectal (20)	40	8	14	18
Anal disease	191	41	80	70
Colitis	343	42	100	201
Condylomata acuminatum	4	0	3	1
Congenital abnormalities	262	175	44	43
Constipation	85	4	39	42
Diarrheal diseases	1,262	857	353	52
Foreign bodies	12	0	9	3
Hemangioma, sacral	8	6	2	
Hemangioma, rectal	1	0	0	1
Hemorrhoids	33	6	14	13
Incontinence of feces	4	0	0	4
Injuries	7	0	1	6
Intussusception	107	0	91	16
Irritable colon	17	4	4	9
Malignancy of colon	4	0	1	3
Meckel's diverticulum	11	4	1	6
Pilonidial area disturbances	206	199	6	1
Polyps	155	4	47	104
Polyposis	11	0	3	8
Prolapse (simple)	83	8	64	11
Procidentia	4	2	2	
Pruritus ani	18	4	2	12
Rectal bleeding (cause undetermined)	31	11	8	12
Sacral disease	6	4	1	1
Venereal disease	5	2	1	2
Volvulus	7	2	0	5

psychiatric colitis group. The literature now supports this psychic relationship.[11] An anxious, hostile interchange between child and parents, especially the mother, is demonstrated.

Convincing proof has been offered that allergy is a contributing factor. Andresen reported that 66% had food allergies. Development of hypersensitivity in colonic mucosa to an item in the diet may be a factor. Proof is provided by "cures" brought about by elimination diets and desensitization to known allergies. The new intramucosal rectal tests of Rider[12] are convincing. His patients received multiple injections of allergens through a proctoscope, using saline as a control. Fourteen patients who reacted positively experienced improvement with diets.

Fries[13] tested 46 children known to be sensitive to certain foods through the barium x-ray enema. Spastic symptoms interpreted as allergic were observed.

There were 9 allergens and 10 personal histories in my 24 cases of allergic colitis. The proctoscopic picture ranged from the mild one of hyperemia, hypersecretion, edema, or giant urticaria of the mucous membrane to the severe types of ulcerations, frank bleeding, and inflammation with seropurulent exudates.

THE BARIUM X-RAY ENEMA

The normal barium x-rays for the different ages A, B, and C have been established.[3] It must be kept in mind that about 75% of the sigmoids are very tortuous, coiled, and lie high in the abdomen. For this reason oblique and 3-stage enemas must be done and often even repeated. Figiel[7] has devised a method for the detection of small polyps which is accurate for those as small as 2 mm.

FOREIGN BODIES AND INJURIES

If a swallowed foreign body passes the pylorus and ileocecal valve it is usually arrested in the lower inch of the rectum. Children at play accidentally swallow coins, buttons, beads, pebbles, and small toys. Some children have a habit of swallowing a single type of foreign body such as coal. Objects which are inserted into the rectum which require removal include thermometers, wooden sticks, enema tips, and safety pins (Fig. 3). Injuries result from thermometers, fecal impactions, barium enema tips, bougies, and proctoscopes.

PRURITUS ANI

Pruritus ani is a tormenting condition and is interpreted as pain by babies who are unable to express themselves. It could be the cause of unexplained irritability, and it is often caused by diarrhea.

ABSCESS AND FISTULA IN ANO

There were 40 abscesses distributed equally between the perianal region (20 cases) and the ischiorectal fossa (20 cases) in the age groups as shown in table 5.[1] It is possible that many perianal abscesses in infants develop from the irritation of the perianal skin caused by diarrhea and urination. Since these infections arise externally, many abscesses heal spontaneously without developing into fistulae after rupture or incision.

There were only 23 cases of fistula in ano in this group, 4 in the age A group (newborn), 12 in the age B group (infant), and 7 in the age C group (child). Fewer fistulae are seen in children than in adults, possibly because fistulae surgery is postponed to minimize damage to sphincter muscles of the very young. During this waiting period a number of cases healed spontaneously.

PROLAPSE AND PROCIDENTIA

The simple mucous membrane prolapse of the rectum is common and occurs mostly in children under 5 years, usually in the first year. Complete prolapse or procidentia which includes all layers of the rectum is not common. The normal anatomic features of the young such as straight rectum, flat sacrum, and high bladder predispose to prolapse. The exciting causes are straining at stool, diarrhea, worms, whooping cough, vomiting, phimosis, and serious illness. Constipation is an outstanding symptom. Treatment of prolapse consists of eliminating the established cause or injections of quinine and urea hydrochloride. The child may outgrow prolapse, but procidentia requires surgery.

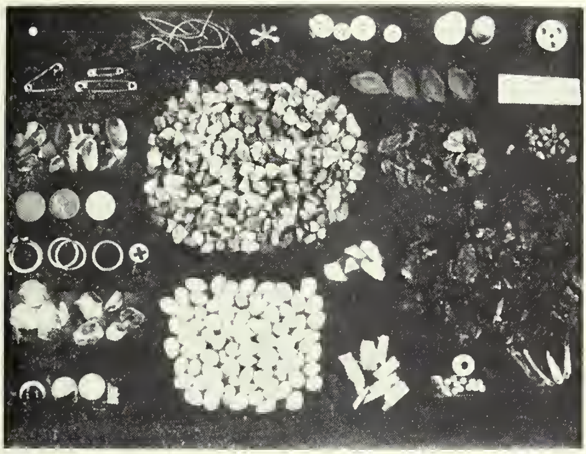
FISSURE IN ANO

Many babies have a fissure in ano over long periods before it is recognized. Its relationship to sudden constipation and fecal impaction is significant. Other causes are excessive straining at stool, sneezing, coughing, and diarrhea. It is the most frequent cause of bleeding (table 6) and anal pain. We had 148 patients with fissure in ano. It is usually single and posterior. When it is multiple, it is indicative of a wasting disease. Rarely is it necessary to operate on fissure in babies. We operated on 2 in the age C group.

ANAL CRYPTITIS AND PAPILLITIS

Anal cryptitis was uncommon considering the frequent diarrheal diseases of infancy. In most infants the anal papillae are normally well-devel-

Foreign bodies swallowed by children



Foreign bodies inserted into children's rectum

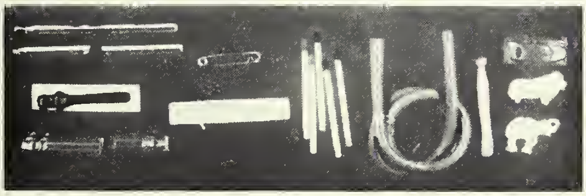


Fig. 3

oped and it is difficult to determine when they are hypertrophied. When the papillae are hypertrophied, they are inflamed and give pain.

OTHER PEDIATRIC CONDITIONS

Meckel's diverticulum may announce its existence by symptoms which are considered rectal, such as intermittent rectal bleeding, usually fluid and bright. There can be a massive hemorrhage, accompanied by colic. Diagnosis is made by x-ray or by exploratory laparotomy.

Volvulus of the sigmoid is a common cause of large bowel obstruction and can occur in the young. We had 7 cases. The diagnosis is made by the flat plate of the abdomen, which shows the typical "bent inner tube" appearance. The barium enema is confirmatory. Since recurrence is common, resection of the sigmoid is ultimately necessary.

Megacolon is probably the commonest cause of "fecal obstructions" and also one of the most common abnormalities in childhood. In our series megacolon was distributed among the (1) congenital or true Hirschsprungs, (2) mechanical, (3) inflammatory, and (4) neurogenic types. Megacolon must be properly classified before being treated. The fantastic reversal in the true knowledge of the pathology of congenital megacolon is sensational. Formerly the large bowel was the site of excision surgery. Now with the demonstration that the aganglionic areas of the disease are most often located in the rectum and lower sigmoid, these are the areas now excised. The most fatal form of this disease is found in the first year of life age A. The diagnosis is made by biopsy in which no ganglion cells will be found in the rectal muscles. Treatment is surgical excision of the rectum as performed by the Swenson[14] or Hiatt[15] techniques. Many older children will be seen whose constipation is psychogenic or mechanical (strictures) and in whom the dilation starts at the anus.

TABLE 6

CAUSES OF RECTAL BLEEDING IN CHILDREN

A. *Congenital anomalies*
  1. Diaphragmatic hernia with torsion
  2. Meckel's diverticulum
  3. Megacolon
  4. Anorectal stricture
  5. Congenital polyposis

B. *Mechanical obstruction*
  1. Intussusception
  2. Volvulus
  3. Intestinal duplication

C. *Local lesions*
  1. Fissure in ano
  2. Hemorrhoids
  3. Polyps of colon and rectum
    a. Adenoma of colon and rectum
      1. Single
      2. Multiple, acquired
      3. Multiple, congenital polyposis
    b. Fibromas
    c. Angiomas
    d. Lipomas
  4. Prolapsus recti and ani
  5. Malignant disease
    a. Adenocarcinoma
    b. Sarcoma
    c. Lymphoma
    d. Fibrosarcoma
  6. Fistula in ano
  7. Stricture of anus or rectum
    a. Lymphogranuloma venereum
    b. Postoperative

D. *Systemic disease*
  1. Hemorrhagic disease of the newborn
  2. Purpura hemorrhagica
  3. Splenomegaly with hematemesis
  4. Poisoning (mercury, chemotherapy)
  5. Intestinal allergy
  6. Irritable colon
  7. Ileitis
  8. Ulcers of rectum and colon due to
    a. Nephritis
    b. Diabetes
    c. Tropism
    d. Hepatosis
    e. Typhoid
  9. Leukemia
  10. Hemophilia
  11. Vitamin deficiency
    a. Scurvy
    b. Sprue
    c. Pellagra
  12. Yellow fever

E. *Infection*
  1. Bacillary dysentery
  2. Amebic dysentery
  3. Dysentery with fungus infection
  4. Ulcerative colitis
  5. Parasitic colitis
  6. Tuberculous colitis or enteritis

F. *Foreign bodies and injuries*

Meningocele and meningomyelocele. These conditions come to the attention of the proctologist because of procidentia recti and incontinence of feces.

Malignancy of colon in pediatric ages is extremely rare. Two cases were encountered in the C group. Two other types of malignancies were seen; one was a retrorectal lymphosarcoma in a 2½-year-old boy and the other was a fibrosarcoma of the rectum in an 11-year-old boy.

Celiac disease. Seventy-one cases were seen with celiac disease because of chronic diarrhea. It is characterized by the expulsion of fatty offensive stools. Proctoscopy showed a picture of catarrhal proctitis due to irritation of the diarrhea.

Intussusception is common and appears most often in the first year of life. The etiological factor usually is not found. Some of the causes considered are intestinal polyp, lymphoma, hematoma, and Meckel's diverticulum. The diagnosis usually follows a characteristic clinical picture: sudden colicky, excruciating abdominal pain with dark mucoid material from the rectum which appears a few hours after onset.

CONCLUSION

Many clinical conditions have been enumerated which confront the proctologist and the pediatrician in the management of infants and children. The importance of the special methods of anorectal and colon examinations was emphasized. X-ray studies were shown to be of great value. The variations in anatomy were outlined and the need for understanding the anomalies were mentioned. It was possible to only review the pediatric proctologic problems very briefly, yet almost all conditions were reviewed.

The author wishes to thank Marvin Ehlin, Jewish Hospital of Brooklyn, for photographic work.

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OUTLOOK FOR recovery may be relatively encouraging in mild alopecia areata partialis but is poor in extensive or chronic alopecia areata or alopecia totalis. In the totalis form, hair loss is permanent in about one-fourth of children and one-third of adults and often continues or recurs in the others. Alopecia areata usually occurs on the scalp, typically as 1 to 3 circular asymptomatic plaques of hair loss regressing within a few months. Totalis can develop unpredictably within a few weeks to five years after continuous or intermittent partialis. The incidence of alopecia is sometimes familial. Associated nail changes and cataracts suggest a generalized ectodermal reactivity. Alopecia is often preceded by psychoneuroses, personality disorders, neurotic behavioral traits, acute emotional strain, or significant head injuries involving emotional stress. Thyroid disease is sometimes associated. Findings are based on treatment of 736 patients with alopecia, 224 with totalis and 512 with partialis, most followed for five or more years.

SIGFRID A. MULLER, M.D., and R. K. WINKELMANN, M.D., Mayo Clinic and Foundation, Rochester, Minn. Arch. Derm. 88:290-297, 1963.

Surgical Treatment of Ulcerative Colitis

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THE VAST MAJORITY of cases of ulcerative colitis of the idiopathic type can be well and adequately managed by medical treatment. The disease is curable by surgery but the operation of choice changes the patient's life to such an extent that it is done with reluctance by most surgeons. For purposes of discussion, ulcerative colitis can be classified into four categories: (1) Mild form, cured by medical management; (2) acute, fulminating type; (3) chronic, continuous type; and (4) chronic, recurring type.

Type I, the mild form which is cured by medical management, is the unusual type. Inasmuch as no definite etiological agent can be demonstrated to establish a diagnosis, one can speculate as to whether these unusual cases really are the true idiopathic ulcerative colitis. The chances are probably quite good that some of them are not. This type of case obviously is never a surgical problem and is mentioned only to encourage conservatism in advising surgery.

Type II, the acute, fulminating form of chronic ulcerative colitis, most often creates the problem of deciding when to operate. The decision is difficult oftentimes because remission can occur rather dramatically and the fine line between operating too soon or too late is exceedingly difficult to define. An element of judgment, acquired by experience with many cases, is an invaluable asset in the decision as to when to operate. Usually about a week of good enthusiastic treatment with fluids, steroids, transfusions, and rest should give the answer as to whether a remission can be induced. Fluid and electrolyte losses can be very great and adequate replacement is often a real problem. With severe ulceration massive hemorrhage, which endangers life, is an ever present possibility and can force emergency surgery under very unfavorable conditions. Whenever a patient's condition is deteriorating in the face of enthusiastic treatment, surgery should be undertaken before the disease progresses beyond hope of salvage.

Types III and IV, the chronic continuous type and the chronic recurring type, eventually will probably all come to surgery because of the complications which occur. The complications which occur and make surgery imperative are: carcinomatous degeneration, general deterioration, and varied specific complications.

Carcinomatous degeneration. It is estimated that somewhere between 15% and 30% of patients with active disease of ten or more years duration develop cancer.

General deterioration of the patient's health. Weight loss, anemia, and malnutrition can become so severe as to dictate removal of the colon.

Specific complications. Stricture, perforation, arthritis, hemorrhage, pyoderma, eye complications such as keratitis, liver damage, and cirrhosis, as well as the anorectal complications of recurrent extensive perianal infections and extensive fistulae, are all indications for surgical treatment of the disease.

After surgical treatment of ulcerative colitis is decided upon, the surgeon is faced with the problem of selection of the proper operation for the patient at hand. Simple ileostomy to divert the fecal stream in the hope that the colon will heal is mentioned only to point out that it is of very little value. Progression of the colitis with hemorrhage, perforation, and so on results in a mortality of approximately 10% in this group of patients before colectomy is done. During the past few years there has been a growing tendency to attempt to save the rectal stump and do ileorectal anastomosis. This has been popularized by our English colleagues. The apparent secret of success of this procedure is a very low ileorectal anastomosis and a temporary, diverting ileostomy. The anastomosis of the ileum to the rectum should be at, or below, the mid rectum. After a suitable period of time for the ileorectal anastomosis to heal securely and the rectal stump to become quiescent, the diverting ileostomy is then closed. To say that this procedure does not have merit would be unfair. The fact that an abdominal ileostomy is avoided is probably the most apparent advantage of this type of surgery. The fact that the rectal stump clears in many

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cases is probably due to the fact that the total amount of disease is reduced to a point where the patient's natural defenses can combat it. What the long-term results are going to be is difficult to say since it is too early to be completely sure. One would assume that if the rectal stump remains quiescent for three or four years it will probably remain so permanently. The frequent loose bowel movements associated with a low ileorectal anastomosis can be very distressing to a patient who is trying to work and carry on a useful life. The necessity of going to stool many times a day, even in the face of good health, can be as disabling for people in certain types of work as the active colitis, and from the economic standpoint it should be considered when the decision is made as to which operation to do. I believe each patient is an individual case and should be evaluated from all angles. In some centers the team approach of gastroenterologist, psychologist, social worker, and surgeon has become popular and eventually will be more prevalent. In the face of active disease in the rectal stump the danger of stricture, hemorrhage, and perianal infection is as imminent as before surgery. These factors may eventually make excision of the rectal stump necessary in some, or all, of these patients. Whether the incidence of cancer in these rectums is as great as if the colon were left in, is a question upon which we can only speculate. More follow-up of the ileorectal anastomoses over many years will tell us the story.

Our own approach to the surgery for ulcerative colitis has been to do one-stage coloproctectomy with permanent ileostomy in all cases. This can be accomplished with a very acceptable mortality if patients are prepared for surgery by enthusiastic therapy with fluids, blood, and plasma where indicated. A good surgical team which can accomplish the entire operation in a reasonable period of time is essential. Patients who are in acute exacerbations with toxicity, hemorrhage, and so on will not tolerate procedures taking four to six hours. A good surgical team should be able to complete the surgery in about two hours. The technique we follow is similar to the technique of Bacon, which frees the entire colon of its attachments before the blood supply is interrupted at any point. The major blood supply is then quickly divided and secured, and the rectum is then entirely removed, including excision of the anal canal from above. A simple gauze pack placed in the anal canal controls bleeding and is removed from below forty-eight hours after surgery. The sphincters are left intact and sexual impotence has not been a problem in these patients. The ileostomy is constructed by the Brooke technique, turning back all layers of the bowel and suturing to the skin. A temporary bag is placed on the stoma in surgery. Forty-two consecutive operations on all types of disease, chronic or acute fulminating, have been done by this technique; there have been 2 deaths. The 2 deaths occurred early in the series. With our present knowledge of electrolyte management these would have been prevented. I am sure neither of the deaths can be attributed to the surgical procedure directly.

SUMMARY

Ulcerative colitis is primarily a disease which can be managed by medical means. The acute, fulminating cases require enthusiastic therapy to induce remission or to prepare the patient for surgery if he seems to be deteriorating. The chronic forms of the disease usually become surgical problems because of the complications which occur as a result of prolonged disease. The choice of operation should be governed by the type of patient and the result one might expect from the procedure. One-stage coloproctectomy with permanent ileostomy is probably still the operation of choice when done by a coordinated surgical team. Ileorectal anastomosis after colectomy is a procedure which should be tried and followed up for a period of time before conclusions can be drawn as to its real merit.

The Treatment of Hemorrhoids

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THE SIMPLE PRESENCE of hemorrhoidal tissue needs no treatment as such veins are standard human equipment and are present from birth. As the age of the individual advances, dilation, engorgement, weakening, perforation, and rupture of the hemorrhoidal veins may occur. Internal hemorrhoidal enlargement causes varying degrees of discomfort, with or without protrusion, and bright red bleeding from the anus is characteristic of erosion of the fragile veins through the mucosa. External hemorrhoidal veins enlarge, weaken, and may bleed under the skin to cause thromboses and pressure pain. External hemorrhage is due to external hemorrhoidal vein rupture and therefore is unusual; it occurs only if the skin erodes.

The anus is a wear-and-tear organ and is subject to constant dynamic stress as age advances. Hemorrhoidal symptoms therefore wax and wane with the general health of the individual, condition of the intestinal tract, the quality of the stool, and the presence of other local disease. These symptoms are characteristically intermittent and long periods of freedom from discomfort or bleeding are the rule.

External hemorrhoids are always skin-covered, and internal hemorrhoids are mucosa-covered. These masses, when severe, may be confluent and difficult to distinguish from each other. Because of venous anastomoses, pure external or pure internal hemorrhoidal disorders are unusual but do occur. They are typified, respectively, by the solitary external hemorrhoidal thrombosis or by the localized polypoid enlargement of the solitary internal hemorrhoidal venous plexus. Repeated attacks of inflammation and edema leave their marks externally as skin tabs and internally as chronically enlarged, fragile, internal hemorrhoidal masses which bleed easily.

External hemorrhoids need no treatment unless subcutaneous thrombosis and pain occur. Even then, in most cases, thrombi need no treatment as they are characterized by pain of short duration (a few hours) with subsequent comfort and steady resorption of the clot. Occasionally, because of size of thrombus and degree of pain, an external hemorrhoidal thrombus may be enucleated under local anesthesia as an office procedure. If the thromboses occur frequently and are multiple, the edema extensive, and the involvement not localized, local excision is not satisfactory and formal external and internal hemorrhoidectomy should be recommended.

Internal hemorrhoids need no treatment unless annoying symptoms, such as irritation, protrusion, tenesmus, and so forth, or blood loss prevail. Treatment of the internal hemorrhoids alone consists of destruction of the varices by one of many methods. Chemical, electrical, or mechanical means are usually employed for this purpose.

In the chemical destruction of internal hemorrhoids a substance is injected submucosally into and around the mass of veins. The substance must be harmless to the patient but must cause enough irritation and subsequent fibrosis to obliterate most of the dilated veins. Repeated injections at two- to three-week intervals may be necessary to obliterate all of the venous spaces. The agent most commonly used is 5% quinine and urea hydrochloride; about 2 cc. is injected into the hemorrhoidal mass or each of the masses at one time. Intravenous injection is not necessary nor even desirable, but it is not dangerous if it inadvertently occurs. Systemic reactions to this drug are virtually unknown and are mild and transient if they occur. Phenol in oil is also commonly mentioned but we have not used this substance and cannot evaluate it from firsthand experience.

Electrical destruction of the internal hemorrhoidal veins requires specialized equipment and was far more in vogue in the early part of the century than now. By means of an indifferent electrode on the patient's body and a needle electrode inserted into the hemorrhoidal mass, a galvanic current is applied at the negative electrode (the needle point) and, over a period of twenty to forty minutes, actual graying and necrosis of the tissue occurs. Subsequent fibrosis and obliteration is thus produced. This too is an

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office procedure and anesthesia is not necessary. We have had extensive experience with this method but have abandoned it in favor of operation.

Mechanical destruction of the internal hemorrhoidal mass has long been known in the various tying-off or ligature procedures, many of which are semisurgical and require some hospitalization. The general principle has recently been revived by the Blaisdell rubber band strangulation technique. We cannot evaluate this method from the standpoint of experience. Each of the foregoing procedures is well adapted to office use in the treatment of uncomplicated internal hemorrhoids and each is satisfactory for this specific purpose. These techniques involve sloughing of tissues and may be attended by severe, troublesome hemorrhage in a small percentage of patients. Because these modes have the undeniable charm of painlessness without hospitalization they always have been, are, and will be misused.

Most patients with significant hemorrhoidal symptomatology suffer from external and internal hemorrhoidal disease for which the above methods are inadequate and office treatment is unsatisfactory. Local heat (sitz baths) and topical medications (ointment) are soothing to irritated nerve ends but have never cured a hemorrhoid. When further treatment is clearly indicated, surgical excision of the hemorrhoidal veins remains the ultimate means of eradicating hemorrhoids and curing their symptoms.

Operation must be anatomical, radical, and plastic. Any surgical technique which accomplishes these ends is satisfactory and good results are permanent. All hemorrhoidal veins must be removed, the sphincter muscle clearly exposed, and the anal canal subsequently lined with viable, pliant skin. We prefer the radial incision method described in detail elsewhere[1] and recognize that there are other surgical methods of obtaining the same desirable results. We advocate the in situ dissection of the external-internal hemorrhoidal groups, partial mobilization of intervening skin, and the use of relatively fine suture material with complete closure of the elliptical wounds.

Hemorrhoids, of course, have nothing to do with cancer but the presence of a coexisting cancer must be conscientiously ruled out before any kind of hemorrhoidal treatment is undertaken. Sigmoidoscopy goes without saying, and barium enema in all age groups should be more widely and freely used. We advocate and routinely use both diagnostic procedures in all patients who, in our opinion, are candidates for hemorrhoidectomy.

SUMMARY

In many patients complaining of anal or rectal symptoms, thorough examination is far more important than hemorrhoid operation, be it surgical or otherwise, and is all the management that is honestly necessary. If treatment is indicated at all, we recommend formal surgical treatment in most patients. Other methods are still infrequently employed and then only under specifically ideal circumstances.

The presence of hemorrhoidal tissue is normal and is not, by itself, an indication for operation or treatment of any kind. Common sense is not the least important factor in selecting the proper course to follow.

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POLYPOID CHANGES in nasal mucosa and chronic rhinosinusitis in children or adolescents commonly are associated with cystic fibrosis. Roentgenograms often reveal sinusitis. Obstruction of the airway by polyps indicates need for nasal polypectomy; paranasal sinusitis not controllable medically may require a sinus operation. Surgery should be conservative and only done when necessary.

J. THOMAS RULON, M.D., HENRY A. BROWN, M.D., and GEORGE B. LOGAN, M.D., Mayo Clinic and Foundation, Rochester, Minn. Arch. Otolaryng. 78:192-199, 1963.

Perirectal Abscesses and Fistulas

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To understand perirectal abscesses and fistulas it is imperative that first the almost unvarying anatomic factor that permits the formation of these lesions be considered. The presence of the dentate margin or anocutaneous junction at the meeting of the rectum and the anus provides the satisfactory anatomic factor. This margin or junction, usually thought to be the site of the coalescence of the proctodeum and the hindgut, is the only break in the continuity of the intestinal tract from its oral to its caudal extremity. The presence of the distally directed crypts provides an especially weak junction for trauma and the introduction of infection.

There has been recent discussion of anal glands as etiologic factors. It is true that they may be factors, but their presence seems to be of secondary rather than primary importance, and added discussion in detail would seem to add nothing to the purpose of this discussion.

The function of this part of the body and its normal or abnormal abuse in the presence of constipation, diarrhea, or the inclusion of foreign objects in the stool provide the simplest underlying etiologic factors.

Trauma resulting from the insertion of hard rubber enema tips or other foreign objects can also be the cause of an abscess and subsequent fistula.

It is interesting to note that it has been recorded that fistulas originate in the posterior midline most frequently and in the anterior midline next most frequently; the remainder originate laterally. The result of the evacuating forces during the expulsion of the stool varies similarly. Most of the force is exerted toward the posterior midline, the second-most force is exerted anteriorly, and the least is exerted laterally. Thus, one might devise a totally mechanical scheme for the sites at which fistulas arise.

There can be little doubt or disagreement at the present time that perirectal abscesses and fistulas originate at the dentate margin. Dr. L. A. Buie's description of the stages in the formation of such an abscess is very satisfactory. Briefly, these stages include: (1) the injury or infection of a crypt, (2) the extension of the infection, and (3) the formation of the abscess. When the abscess is opened or ruptures spontaneously the fistula is complete.

Although the site of the original entrance of the infection is usually limited to the dentate margin, the abscess can occur proximal or distal to this point of origin. The abscesses have numerous names depending on their situation, for example, subcutaneous, submucosal, ischiorectal, perianal, perirectal, right or left pelvirectal, supralevator, infralevator, horseshoe, sprinkling-pot, perineal, and so on. It is also advisable to remember that a single abscess may be found to present internally as well as externally, and, furthermore, arising from a common source, the infection may extend proximally as well as distally and present as 2 separate abscesses.

The patient who has an anorectal abscess usually complains of gradually increasing pain. If the abscess is external he will usually have noted swelling. If the abscess is internal, the patient frequently will describe his pain as being "up in the rectum." Some abscesses, according to the patient's story, will appear and disappear without any apparent drainage or with some discharge which may occur from the rectum. In these instances there can be palpated a mass of induration with little or no fluctuation. Apparently the pressure in these abscesses becomes sufficient to cause the abscess to drain back through the primary opening which may be more patent than usual.

It is advisable to get the patient's history of his difficulty; while it is often tempting to arrive at the diagnosis from this alone, premature judgment should not be exercised but should be corroborated by the physical findings.

On examination some external or internal abscesses can be palpated without too much difficulty. Gentleness is paramount in examining any patient with an abscess. Frequently such patients have tolerated discomfort to their utmost limit

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NEWTON D. SMITH *practices proctology in Fort Worth.*

before consulting a physician. If the examiner is unduly rough he may obtain only part of the information needed to arrive at the right diagnosis and the proper treatment.

Some abscesses are confined to the tissues immediately surrounding the anus. They may present no detectable superficial distortion. In some of these, a simple digital examination may fail to provide the information desired. A bidigital examination then may be necessary. Such an examination is accomplished by inserting 1 index finger into the anus gently while the other index finger is employed to palpate the tissue surrounding the anus and intervening between the 2 finger tips. The abscesses in this group are usually small, 1 to 2 cm. in diameter, and present as firm or fluctuant masses between the examining index fingers. The inquisitive pressure exerted usually intensifies the patient's discomfort.

The treatment of abscesses consists of the drainage and completion of the fistula. Before completing the fistula, it is best to explain the situation to the patient. To merely incise the abscess and later tell the patient he has a fistula often leaves him uncertain about the treatment he has had. If, however, he understands prior to the initial incision, he will usually cooperate much better and will understand the 2 stages required.

Some abscesses can be opened in the physician's office. Often it is kinder and much more saitsfactory to send the patient to the hospital and employ intravenous anesthesia to open the abscess. Opening the abscess requires some exercise of judgment, and it should never become a routine procedure. Most abscesses should be incised as soon as possible after the diagnosis is made. The chief reason for this is the patient's comfort. When an external abscess is deeply seated, with more than an inch of overlying adipose tissue, the patient may apply hot, wet packs to the area for one or several days to try to get the abscess closer to the surface. This insures better drainage. The alternate solution requires a longer incision with removal of some of the adipose tissue. This radical procedure ultimately causes undue distortion of that part of the surface of the body when healing is complete.

It is advisable to incise an external abscess at the closest point to the primary opening as possible. The primary opening can frequently be palpated or the path of the infection from the crypt to the abscess can be palpated, suggesting the possible site of the guilty crypt. It is frequently insufficient to merely make a lineal incision, and it is much more satisfactory to convert the lineal incision into a hole. This can be accomplished readily by grasping each of the wound margins with a clamp and then with curved scissors remove 0.5 to 1 cm. of tissue. Drainage will then be ample. Drains will interfere with rather than help drainage.

The treatment of internal or perirectal abscesses is very similar. With the patient under anesthesia the abscess can be delineated digitally. An incision can be made with a scalpel over the lowest part of the fluctuant abscess mass and then a curved forceps forced into the cavity. The forceps blades are separated as they are withdrawn. This will usually provide ample drainage and less bleeding than if scissors or scalpel were used for the entire procedure. If there is bleeding of sufficient amount to justify it, a continuous lock suture placed around the resulting wound margin will supply hemostasis. No drains are employed. For emphasis it is repeated that the incision is made "over the lowest part of the fluctuant abscess." This insures that the operation for the correction of the resulting fistula will be simpler than if the incision is made higher, often over the most prominent part of the abscess.

After incising an external abscess it is advisable to wait a week or ten days before proceeding with the fistulectomy. During this period the abscess cavity will contract remarkably and therefore result in a smaller fistulectomy wound. This interval will also provide time for fibrosis to build up around the tract. In those cases in which the fistula tract leads through or under the external sphincter this fibrosis will help to keep the sphincter fibers from retracting and will, therefore, assist in retaining the patient's anal continence.

All patients having abscesses or fistulas should be sigmoidoscoped as soon as comfort will permit.

Differential diagnosis of abscess, fistulas, and chronic draining sinuses in this region of the body also should be considered. Usually such lesions are of the sort already considered, but others do exist and they should be remembered to avoid errors. Without noting the comparative frequency of appearance they are:

(1) Bartholin cyst abscess or sinus; sometimes, however, this diagnosis is made when the actual condition is an anorectal abscess or fistula.

(2) Sebaceous cysts may cause small abscesses, and, in the presence of inspisated sebum, a chronic sinus may persist.

(3) Hidradenitis suppurativa may present a subcutaneous abscess or sinus, but the other fac-

tors in this disease tend to call the physician's attention to the underlying pathology.

(4) Tuberculosis, as such, is possible but exceedingly rare. I have seen only 1 case. Other evidence of tuberculosis is usually present.

(5) Actinomycosis is another rare condition causing a chronic sinus. Such a sinus may occur without a preceding abscess. The board-like induration without anorectal involvement suggests the underlying cause. The diagnosis ultimately depends upon laboratory studies.

(6) Osteomyelitis of the bony pelvis can produce chronic draining sinuses. Roentgenologic examination of the bony pelvis will usually disclose the causative lesion.

(7) Anal fissures will sometimes cause abscesses and sinuses, but the underlying lesion usually can be discovered without too much trouble.

(8) A perineal sinus resulting from a urethroperineal fistula can occur, but a carefully obtained history will usually indicate the cause. Examination under anesthesia may be required to be sure of the diagnosis.

(9) A carcinoma or epithelioma at or just above the dentate margin may cause an abscess and fistula, but digital and anoscopic examination should disclose the primary lesion.

(10) Penetrating injuries in the tissue surrounding the anus can cause chronic sinuses. If it persists it may be because of the presence of a foreign body which was forced into the tissues at the time of the injury. Roentgenologic studies and examination of the tract should reveal the exact situation.

(11) Pilonidal cyst with a tract leading into or rupturing in the perianal region may resemble a fistula.

(12) Retrorectal cyst may be present with a coexisting dimpled area in the anal canal. Occasionally drainage may occur from the dimpled area. Lack of pain and the palpable induration or fluctuation should arouse suspicion. The cyst should be removed without opening the rectum.

The operation for the care of an anorectal fistula whether internal or external is actually a fistulotomy. I have not been able to discover a satisfactory reason for excising the fistula tract. Simply and ideally, the operation consists of the exteriorization of all of the tract or tracts and even the abscess cavity when there are overhanging edges in the latter area.

Some prefer low spinal anesthesia. Personally, caudal or caudal-sacral anesthesia has proved to be very satisfactory. Because of the importance of relaxation of the anal and perianal musculature the types of anesthesia suggested are superior to general anesthesia.

After anesthesia is complete it is best, if possible, to identify the primary opening. This is important because it provides the surgeon with the prime or ultimate target. If the operation can be accomplished beginning at the primary opening and exposing all of the involved tracts, there is less chance of error than with the alternate procedure. This would be to begin at the secondary opening or openings and proceed to the primary opening. Either method can produce a satisfactory result. Before starting to incise the tissue overlying the tracts, it is advisable to try to palpate the tracts digitally or bidigitally. If the tracts can be palpated, the road map for the remainder of the surgical process is simplified. It must be remembered, when employing a probe to follow a tract, that if the probe is forced through the wall of the tract, it can be pushed into the perianal and perirectal tissues without much effort. Thus it can supply an erroneous route for the surgeon to follow. It is advisable, when possible, to palpate the tract while inserting the probe.

In some instances, when it is difficult to find the primary opening, the distal margin of the secondary opening can be grasped with a forceps and the opening pulled in all directions. Frequently this maneuver will cause dimpling of the guilty crypt synchronously with the pulling effort exerted on the clamp.

After all of the tracts are uncovered it is important to landscape the resulting wounds. It is recommended that tissue be removed not haphazardly but sparingly to remove all of the overhanging edges and to make the wounds "V" or "U" shaped in cross section. This will insure ample drainage and prevent the wound edges from approximating and bridging over the base of the wound.

In some simple fistulas no sutures are required. In others it will be necessary to suture the mucosa at the level of the dentate margin when there is retraction of the mucosal edge. In some external wounds needing hemostasis and in those cases in which the wound margin or margins may be unavoidably overhanging, sutures may be employed. In the latter cases a continuous lock suture and plain 1 catgut is preferred. The suture is inserted through the tract and the subcutaneous tissue and is brought out subcutaneously. It is best to place continuous lock sutures around the entire wound margin in internal fistulas to insure hemostasis.

A short length of Penrose drain is left in the anal canal. In external fistulas, exposed wounds are covered with Telfa, a generous handful of fluffed gauze sponges for resiliency, and an elastoplast bandage for pressure; the dressing is left in place for twenty-four hours. After its removal, hot wet packs are applied for six hours daily for five days. Nitrofurazone (Furacin) soluble powder is applied 3 times daily for ten days. Taking care of internal fistulectomies requires much less dressing and no hot packs. Several types of suppositories have been tried postoperatively in the latter, but there is little to suggest that such medication has hastened or even helped the wound healing.

Usually the patients are kept in the hospital five to seven days during which time an effort is made to establish normal bowel habits. When the patient returns home, he should be instructed to cleanse the wounds with soap and water 3 or 4 times a day, especially after evacuation.

If the patient asks about possible incontinence during the consultations prior to surgery, it is wise to discuss it with him frankly. This can be accomplished best by explaining the type of lesion present, together with a brief description of the required surgery. It is well to call attention to the fact that the inflammatory process sometimes destroys tissue which cannot be replaced. Finally, assure the patient that you understand the problem and will do everything you can to preserve continence. The wounds should not be packed postoperatively, because packing can cause incontinence.

After the patient leaves the hospital it is advisable to see him every three or four days until healing is complete. During this time the tracts should be studied to be sure there is no bridging. If excessive granulation tissue occurs, it is much kinder to remove it with sharp scissors rather than silver nitrate. Dressings applied to the wounds will vary with site of the wound, the patient's desire, and the type of clothing he wears. However, this is not a major problem, and frequently the patient will solve it himself.

SCLEREMA NEONATORUM appears, often as a terminal event, in association with a variety of potentially fatal underlying disorders. The primary disease, rather than the dermatologic lesion, is always the cause of death and must be diagnosed and treated promptly. If the infant recovers, the sclerema disappears without specific treatment.

Seldom seen except in the neonatal period and early months of life, the lesion consists of smooth, cool, tense, mottled, and hard skin, apparently adherent to uniformly hard subcutaneous tissues. The thighs and calves are affected initially by the process, which then spreads peripherally through fatty subcutaneous tissue. Eventually movement becomes restricted and temperature and pulse and respiratory rates fall progressively until the infant dies.

Infection should be considered the probable underlying condition until tests prove otherwise, but antibiotic agents should not be given until multiple cultures have identified the organism. Evidence of congenital abnormalities or trauma as possible causes should also be sought. Proper environmental temperature should be carefully maintained and fluid, blood, or digitalis administered intravenously as necessary. Corticosteroids are of no value unless the infant has adrenocortical insufficiency.

In 18 infants with sclerema neonatorum, 16 serious infections and 9 major cardiac or gastrointestinal abnormalities were uncovered. Only 7 recovered. Of the 11 who died, 5 showed the first signs of sclerema within eight hours of death and 6 were afflicted fourteen hours to five days before. These latter were considered at least potentially curable.

WARREN J. WARWICK, M.D., HERBERT D. RUTTENBERG, M.D., and PAUL G. QUIE, M.D., University of Minnesota, Minneapolis. J. Amer. med. Ass. 184:680-683, 1963.

John Harris Moore, M.D.

A Memorial

ERNEST L. GRINNELL, M.D.
Grand Forks

On a September day in 1920 a young physician, who had served honorably with the Medical Corps of the American Expeditionary Forces in France, paused briefly in the city of Grand Forks to pay a visit at the home of his father who was pastor of the First Methodist Church.

Having recently completed his obstetrical and gynecological training in Chicago, Dr. John Moore was taking a last short vacation before settling down to practice. After a day or two at home, he dropped in for a visit at the clinic which Drs. Healy, Law, and Woutat had organized only a few years before. Overburdened with work, the three partners prevailed upon their young visitor to remain for a few months to "help out." Somehow the "helping out" idea stretched into nearly forty-three years during which the tenderfoot blossomed into maturity and became a full partner.

These proved to be busy, golden years for John Moore, and, as they sped swiftly by, his splendid professional achievements earned for him the profound respect of his associates. Within a short time his work had made its mark upon obstetrical and gynecological practice in his native state. Nor was it destined to end there. As the years passed, this Dakota doctor came to be widely recognized and national leaders paid him homage.

Then, on April 7, 1963, after nearly half a century of intense devotion to a magnificent ideal, God's finger touched him.

Even as a boy John Moore was deeply devout. Profoundly aware of God's eternal hope for mankind, he indicated an early dedication to an ideal of service, and he set his feet unerringly on the road of self-sacrifice that the practice of medicine demands of all her servants.

For this remarkable man the crowded days were always a glorious challenge and he made the most of them. The passing years seemed only to add to his brilliant intellect, his wit and charm, and the nobility of his character. The warmth of his personality rapidly widened his circle of professional acquaintances until he numbered among his close friends physicians across the length and breadth of the land.

A keenly perceptive man, John Moore was quick to detect shoddiness, inefficiency, or outright sham. He detested intellectual dishonesty and unhesitatingly made known his intense repugnance. Medicine was his life, progress his "raison d'etre." In spite of an exacting practice in the field of obstetrics and gynecology, he never allowed himself a respite in his struggle to bring, not only to his own patients and community but the entire state of North Dakota, the newest and finest that medical science had to offer. In the face of overwhelming odds and discouragement, it was he who by the very force of his personality and to the last ounce of his

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ERNEST L. GRINNELL *is with the Grand Forks Clinic.*

physical energy persevered until an acceptable bill was drawn that, when approved by the electorate, created the magnificent Medical Center of which all North Dakotans are justly proud.

From the very outset John Moore seemed to be marked for success. Outstanding as a clinician, he also distinguished himself as a teacher, an author, a lecturer, and a capable and fearless leader in the onward march of medical progress. Always a fierce champion in demanding nothing but the best in standards of medical practice, it was largely due to his efforts as a member of the Maternal Welfare Committee of the North Dakota State Medical Association that the maternal death rate was reduced to one of the lowest of any of the states of the union. For many years he served his state association as delegate to the American Medical Association.

Through the years John Moore's avid interest in and devotion to all aspects of his profession brought him wide acclaim. A good many honors were accorded him in recognition of the excellence of his professional work. He was a diplomate of the American Board of Obstetrics and Gynecology and a fellow of the American Medical Association, the American College of Surgeons, the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, the American College of Obstetricians and Gynecologists, and the American Gynecological Society.

In addition to serving as president of the Public Health Advisory Board for North Dakota, he had served as secretary of the Executive Committee of the American College of Surgeons for North Dakota and had been president of the North Dakota Society of Obstetrics and Gynecology. He also was a past president of the Central Association of Obstetricians and Gynecologists. His address to this society on being inducted as president was entitled "Individualism." The members were so impressed with its excellence, timeliness, and broad implications for every American that the succeeding president arranged to have a copy of it placed on the desk of every member of Congress.

Completely fearless, John Moore was made for a contest, and the courageous battle that he waged is attested to by the saga of his life. In simple tribute it may be said of him that indeed he was like a candle lighting the way for others while consuming itself.

His deeds and his accomplishments will forever stand as a goal for young physicians, a magnificent mark they may strive to excel.

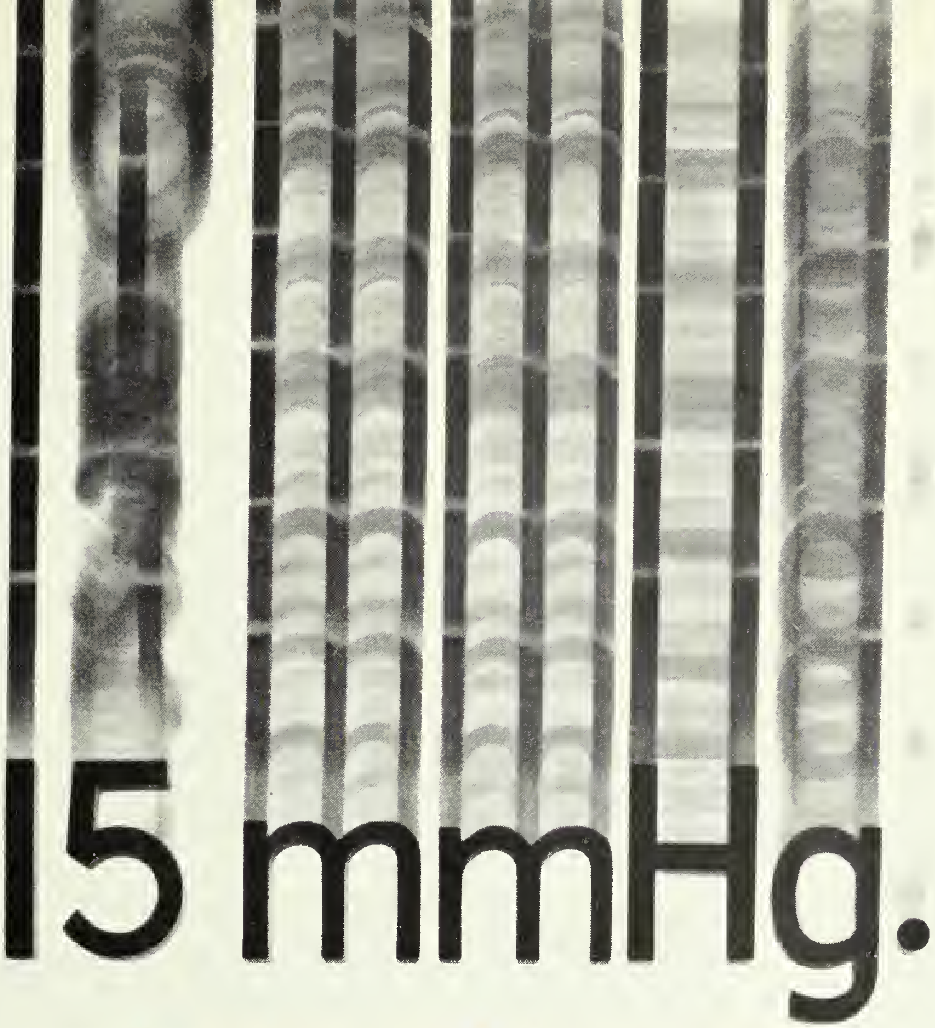
The memory of the brightness of his smile and the cheery ring of his laughter will linger with us always. Surely all of those who knew him and loved him take comfort in the secure knowledge that John Moore's earthly honors are but dust compared with the highest tribute that man can earn—the accolade bestowed by the Master of the Universe: "Well done, good and faithful servant!"

OPEN REDUCTION and internal fixation with screws is effective treatment for severely comminuted fractures of the distal humerus. Condylar fragments are assembled through an extensive posterior approach. A screw is inserted transversely in a drill hole in the larger fragment, medial or lateral. Fragments are assembled on the screw, each held tightly as it is advanced. If the fragments rotate, a second transverse screw is inserted. After trochlea and capitulum humeri are assembled, the supracondylar portion is reduced and fixed.

WILLIAM E. BICKEL, M.D., and RICHARD E. PERRY, M.D., Mayo Clinic and Foundation, Rochester, Minn. J. Amer. med. Ass. 184:553-557, 1963.

MEDIAN NERVE COMPRESSION and carpal tunnel syndrome edema causing burning, aching, and paresthesia in the hand may occur after treatment of Colles' fracture in the Cotton-Loder position. The position probably should be used only when good alignment cannot be obtained otherwise. Symptoms may occur a few hours after treatment or months or years later. Although conservative treatment may help in mild cases, division of the transverse carpal ligament is usually recommended.

ANDREW C. LYNCH, M.D., and PAUL R. LIPSCOMB, M.D., Mayo Clinic and Foundation, Rochester, Minn. J. Amer. med. Ass. 185:363-366, 1963.



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1. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, Calif., Nov. 25-28, 1962.
2. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. *J. Amer. Geriat. Soc:* 11:945 (Oct.) 1963.

INDICATED in hypertension with or without edema, and in all types of edema involving salt retention. May be helpful in some cases of lymphedema, idiopathic edema and edema due to venous obstruction.

SIDE EFFECTS: Skin rash (rare), gastrointestinal disturbances, weakness and dizziness, seldom so severe that drug should be stopped. Generally, the adverse effects, sometimes associated with the thiazide diuretics are possible. Pre-existing electrolyte abnormalities may be aggravated.

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Book Reviews . . .

Clinical Disorders of the Heart Beat

by SAMUEL BELLET, *2nd ed., 1105 pp., ill., Lea & Febiger, Philadelphia, 1963. $28*

This second edition of Dr. Bellet's rather monumental work on the disorders of cardiac rhythm brings his book up-to-date and certainly continues to be one of the most complete and authoritative discussions of this subject. As the title implies, the approach here is a clinical one, and each arrhythmia is discussed from the standpoint of its mechanism, its clinical manifestations, its diagnosis and differential diagnosis, and its treatment.

The first 2 chapters concern themselves with the anatomy of the conduction system and its physiology. The anatomical portion is nicely illustrated with photomicrographs collected from the literature. The chapter on physiology is followed by a brief chapter describing the hemodynamic sequelae of the arrhythmias. The descriptions of the individual arrhythmias are preceded by a general discussion of the total subject of rhythm disturbances and the general therapeutic measures applied in them.

The major arrhythmias then are discussed individually. The electrocardiographic diagnosis naturally is emphasized, and the illustrations are excellent, profuse, and well-reproduced. In each of the chapters the author has several summaries of points he wishes to emphasize which he puts in a box and presents in outline form. These review-like presentations of highlights help the reader considerably. This method of presenting salient points is not a unique one, but it is used in this book to good advantage.

The subject of cardiac arrest is discussed from the standpoint of its etiology and therapy. The importance of monitoring during surgery is emphasized, and both the open- and closed-chest methods of resuscitation are described as well as are the drugs to be used.

One entire section of the book is devoted to arrhythmias found in conjunction with certain specific clinical states. The first of these is syncope, and the chapter deals with the entire subject and goes beyond a discussion of just those forms of syncope associated with cardiac arrhythmias. Arrhythmias in the fetus recorded by fetal intrauterine electrocardiography are also described. Of special interest are the chapters on the effects of anesthesia, surgery, and hypothermia as well as angiocardiography and cardiac catheterization in producing arrhythmias.

A substantial section is devoted to the drug therapy of arrhythmias. The broad groups of drugs as well as individual drugs are described in detail as to their mode of action, indications, dosage, and so forth. A chapter on electrolytes used in the therapy of rhythm disturbances compliments nicely one which appears earlier in the book on the role of the electrolytes in producing such disturbances.

The 2 final chapters in the book concern themselves with artificial pacemakers, defibrillators, and cardioverters. With the great volume of material being published relative to these procedures at the present time, these chapters will probably soon need some revision and amplification.

This book certainly remains one of the outstanding ones on this subject. It will be of value to all physicians as a reference work, to students from the medical school through the resident levels, and of inestimable value to the cardiologist.

MILTON M. HURWITZ, M.D.
St. Paul

Evaluation of Thyroid and Parathyroid Functions

edited by F. WILLIAM SUNDERMAN *and* F. WILLIAM SUNDERMAN, JR., *292 pp., ill., J. B. Lippincott, Philadelphia, 1963. $12.50*

This book contains the proceedings of the applied seminar of the Association of Clinical Scientists. The first part deals with the thyroid gland and the latter part with the parathyroid gland. A good portion of the text is concerned with laboratory procedures used in the diagnosis of thyroid and parathyroid diseases. Methods are described in individual chapters for detection of thyrotropin, serum protein-bound iodine, butanol extractable iodine, and radioisotopic techniques utilizing I^{131}. In addition the various methods for determining calcium and phosphorus in biological fluids are reviewed. Many of the chapters include correlation of these data with various diseases of the parathyroid and thyroid glands. The references at the end of the chapters are also rather complete. In addition, there are other topics which are reviewed, including the ultrastructure and pathology of the parathyroid glands, bioassay of parathormone, antithyroid antibodies and thyroiditis, and certain clinical aspects of hyperparathyroidism.

Since the scope of the symposium was relatively broad, the book does not cover in depth every aspect of thyroid and parathyroid function but should be especially useful as a ready reference for correlating laboratory methods with parathyroid or thyroid disease. The clinical laboratory would benefit by including this symposium in its library.

A. F. MICHAEL, M.D.
Minneapolis

Moral Treatment in American Psychiatry

by J. SANBOURNE BOCKOVEN, *116 pp., ill., Springer Publishing Co., Inc., New York City, 1963. $3*

This 116-page book paints an unusually lucid picture of changes in psychiatric practice in mental hospitals during the last two hundred years. As in all really illuminating historical documents, the author has not limited himself to a bare descriptive recital of events but has placed his central themes in the context of the changing philosophical, cultural, social, and scientific mores of the periods. Nor is he loath to offer his own provocative interpretive comment.

"Moral treatment might be defined as organized group-living in which the integration and continuity of work, play, and social activities produce a meaningful total life experience in which growth of individual capacity to enjoy life has maximum opportunity.

"The moral therapist acted toward his patients as though they were mentally well. He believed that kindness and forbearance were essential in dealing with them.

(Continued on page 18A)

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BRIEF SUMMARY: *Indications:* Depression, especially when accompanied by anxiety, tension, agitation, rumination or insomnia. *Side Effects:* Slight drowsiness and, rarely, allergic reactions, due to meprobamate, and occasional dizziness or feeling of depersonalization in higher dosage, due to benactyzine, may occur. Meprobamate may increase effects of excessive alcohol. Use with care in patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction. Withdraw gradually after prolonged use at high dosage. *Complete product information available in the product package, or to physicians upon request.*

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(Continued from page 14A)

He also believed in firmness and persistence in impressing on patients the idea that a change to more acceptable behavior was expected."

Dr. Bockoven sees the remarkably effective moral treatment of the early nineteenth century as the product of the appreciation of democratic principles on which this country was founded and the social structure of the communities that not only allowed but forced people to know and, to a degree, understand one another. With the rise of materialism and the advent of an almost exclusively mechanistic science, it was possible for society to devalue human worth and the out-of-sight, out-of mind custodial period of mental hospitalization flowered in an atmosphere of deprivation. That we are only now, a century later, rediscovering the value of moral treatment is somewhat embarrassing.

"The picture of mental illness which is emerging from research in the strongly related fields of psychiatry, physiology, and sociology is one in which a circular series of events occurs, beginning with social factors which produce psychological changes. These psychological changes then, depending on the individual's constitutional inheritance, alter physiological functions which are accompanied by further psychological changes. Change in behavior elicits further reactions from society which, once again, produce psychological changes in the individual and repeat the cycle." The problem is to interrupt the cycle. Recent advances in psychiatry and related sciences improved opportunities for so doing.

Those of you who have worked in mental hospitals, particularly as a superintendent, will find delight, or possibly offense, in the final chapter "The Problems of Treatment in the Traditional Mental Hospital."

Moral Treatment in American Psychiatry should be required reading for all involved in the treatment and rehabilitation of the mentally ill.

DALE C. CAMERON, M.D.
Washington, D. C.

The Environment of Medical Practice

edited by R. B. ROBINS, *357 pp., Year Book Medical Publisher, Inc., Chicago, 1963. $6.50*

Many years ago, when I was a young man, one of the most popular books that could be found in the offices of thousands of physicians was called *Cattell On The Physician Himself*. This was a helpful book, especially for young doctors, because it gave them so much of the information they needed to know and hadn't obtained at college—information as to how to live in the world as a physician, getting along with their fellow physicians, with their patients, with public health officials, with their medical associations, and so forth.

Here is another book something like Cattell's, written by a number of able, prominent, and thoughtful American physicians. Each chapter deals with some problem of the physician. For instance, in the first chapter 2 fine, able, dedicated physicians, Drs. Wingate M. Johnson and Milford O. Rouse, write on the human side of medicine.

Chapters are included on the physician's place in public affairs, his relations with the medico-legal officer, the health department of his city, the authorities in the hos-

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pitals in which he works, his medical organizations, paramedical fields, and voluntary health agencies. There are chapters on the government in health, on the origins of voluntary health insurance, medical economics, the practice of medicine, and the medical ethics of today.

The chapter on ethics was written by Dr. Louis A. Buie, Sr., of the Mayo Clinic, who some years ago was asked by the American Medical Association to take their enormous code of ethics, which in 1903 contained as many as 53 sections, and to cut it down to something that the average physician could read, study, and understand. In this chapter, Dr. Buie tells us what he did to accomplish this.

The editor is Dr. R. B. Robins, member of the Board of Trustees of the American Medical Association and once president of the Academy of General Practice. Obviously, this book ought to be in the office of every physician. As Dr. Robins says, he was stimulated to edit a small volume on these phases of the practice of medicine so that medical students, interns, residents, physicians, and the public could have assembled under one cover, basic background material in this area of medical ethics and the socioeconomic principles of a doctor's work.

WALTER C. ALVAREZ, M.D.
Chicago

Indications for Open-Heart Surgery: Risks and Results

by DRYDEN P. MORSE, *213 pp., ill., Charles C Thomas, Springfield, Ill., 1963. $8.75*

Dr. Morse's book was written with a definite goal in mind: presentation of a primer of cardiovascular surgery to general practitioners of medicine. The book is not designed as a textbook for surgeons nor would it give much help to a cardiologist or an internist.

Each subject is treated quickly, concisely, and without extensive discussion of the pros and cons of each subject. Nevertheless, the outline form reads with tabloid newspaper ease and is worthy of even the cardiac surgeon's use if he is engaged in speechmaking to local medical societies and hospital staffs. Dr. Morse points out, to the sometimes verbose specialist in the cardiovascular field, items of critical interest to the general practitioner. For this reason alone, the book should rest on the cardiac surgeon's shelf.

Small details should be mentioned relative to Dr. Morse's technique of writing, details which could well have been caught by the proofreader. For instance, a literary lapse or an omitted paragraph takes place in the introduction. The second paragraph on page 11 of the introduction opens with the statement, "Clearly, two additional steps are necessary in each case." To the reader's knowledge, no reference was made to a first step in the preceding sentence or paragraph. Literary lapses such as these detract little from the overall presentation, however.

On page 9 of his discussion of patent ductus arteriosus, the electrocardiographic changes are touched on too briefly, in that it is stated, "There will be evidence of right ventricular hypertrophy." It would require only a sentence to simply enumerate the change in the electrocardiographic tracing itself rather than state the anatomical cause of the electrocardiographic result. In defense of the author's writing, however, it must be noted

(Continued on page 20A)

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BOOK REVIEWS

(Continued from page 19A)

that he covers the subject material with few wasted words.

The author spells out the indications as he sees them for open heart surgery and here, I think, is the greatest value of the book. What does the general practitioner do with a youngster who has a heart murmur obviously of congenital origin? When does he act? Where does he send the patient? These are questions which trouble the general practitioner and the pediatrician alike, particularly those who see a modest number of heart cases. Here is a manual which can be read with ease, a book which is logically put together. Also, an excellent index provides quick reference.

A concise table of 4 points which compel surgical intervention for the atrial septal defect appears on page 39. A more straightforward approach could not be found anywhere. Dr. Morse also bravely prints a box score of successes and failures in various centers; he prudently introduces this treacherous area with the statement that these results are changing rapidly.

Aside from the fact that Dr. Morse attempts to cover too much of the cardiovascular field, I highly recommend this primer to the general practitioner.

SAMUEL W. HUNTER, M.D.
St. Paul

NEW BOOKS RECEIVED

Books and publications received will be listed here periodically, and such mention must be regarded as sufficient return for the courtesy of the sender. Books of special interest to our readers will be reviewed as space permits.

Disorders of Carbohydrate Metabolism edited by D. A. PYKE, 248 pp., ill., J. B. Lippincott Co., Philadelphia, 1962. $6

Ciba Foundation Symposium "Bilharziasis" edited by G. E. W. WOLSTENHOLME and MAEVE O'CONNOR, 433 pp., ill., Little, Brown & Co., Boston, 1962. $11.50

Essentials of Chemical Pathology by D. N. BARON, 4th impression, 247 pp., ill., D. Van Nostrand Co., Inc., Princeton, New Jersey, 1963. Hard cover: $3.50. Paper cover: $2.50

Neurosurgical Problems in Orthopaedics: Clinical Orthopaedics and Related Research No. 27 edited by ANTHONY F. DE PALMA, 277 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $8

Pathophysiology and Treatment of Body Fluid Disturbances by HANS G. KEITEL, 310 pp., ill., Appleton-Century-Crofts, New York City, 1962. $6.95

Pharmaceutical Calculations by WILLIS T. BRADLEY, CARROLL B. GUSTAFSON, and MITCHELL J. STOKLOSA, 4th ed., 357 pp., Lea & Febiger, Philadelphia, 1963. $5

Fluid and Electrolytes in Practice by HARRY STATLAND, 3rd ed., 329 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $8.50

News Briefs . . .

North Dakota

DR. WILLIAM WHITESIDE was to begin practice in Hazen, March 1, associated with Dr. Edmund G. Vinje in the Hazen Clinic. The Canadian physician received his medical training in Canada, with residency in New York state.

* * * *

DR. CHARLES M. CLARK, of the St. Joseph, Mo., state hospital, has joined the staff of the Jamestown State Hospital. While serving in St. Joseph, he was active in developing a team approach to continuous-treatment patients. Dr. Clark is a graduate of the St. Louis University Medical School and formerly worked for the U.S. Public Health Service.

* * * *

DR. JAMES F. WOODWARD, optometrist with the Quain & Ramstad Clinic in Bismarck since 1958, has been elected a fellow in the American Academy of Optometry. He graduated from Northern Illinois College of Optometry and is a member of state and national optometry associations.

* * * *

DR. ROBERT C. GAEBE has joined the staff of the Fargo-Moorhead Psychiatric Center as psychiatrist after training at the Veterans Administration Hospital, Topeka, Kan., and the Mental Health Institute, Cherokee, Ia. Dr. Gaebe received his M.D. degree from the University of Louisville, Louisville, Ky., interned at Deaconess Hospital, Grand Forks, and served residency in internal medicine at Bismarck Hospital before entering private practice at Casselton. He is the son of Dr. Otto C. Gaebe of Bismarck.

* * * *

DR. JOSEPH A. HILTS has established a general practice in New Salem, following an active campaign by New Salem residents to obtain medical care for their community. He has been practicing in Mandan. Born in Canada, Dr. Hilts received his medical training at the University of Manitoba, Winnipeg, and the University of Saskatchewan, Saskatoon. He began medical practice in the United States in Hettinger in 1954 and moved to Mandan in 1961.

* * * *

DR. ROBERT F. NUESSLE, Bismarck surgeon, has been reelected president of the Bismarck Hospital staff. Also reelected for one-year terms are Dr. Norvel O. Brink, vice-president; Dr. Robert B. Tudor, secretary; and Dr. Clifford H. Peters and Dr. Robert W. Henderson, members-at-large.

* * * *

DR. GALE R. RICHARDSON, pathologist at St. Joseph's Hospital in Minot, has been elected president of the Northwest District Medical Society, succeeding Dr. Richard S. Larson of Velva. Dr. George M. Hart of Minot is vice-president, and Dr. Brian E. Briggs of Minot is secretary-treasurer.

* * * *

DR. FRANK A. HILL of Grand Forks is the new president of the Third District Medical Society. Other new officers are Drs. Kenneth S. Helenbolt of Grand Forks, president-elect; George L. Countryman of Grafton, vice-president; Carl E. Lorentson of Grand Forks, secretary-treasurer; and Ernest L. Grinnell of Grand Forks, censor.

(Continued on page 22A)

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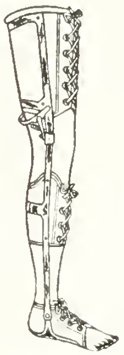

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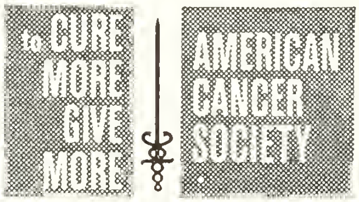
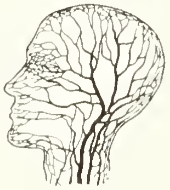


dilate peripheral vessels and increase circulation



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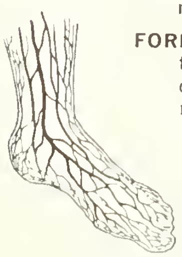

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NEWS BRIEFS

(Continued from page 21A)

DR. HANS E. GULOIEN of Dickinson is regional chairman for the North Dakota Comprehensive Mental Health Planning Survey, a program conducted by the State Health Department through a grant from the National Institute of Mental Health. He is responsible for gathering information concerning mental health needs throughout a 7-county area.

* * * *

DR. EOIN S. HARVEY, obstetrician and surgeon, began practice in Tioga in February. He is a native Canadian. He received his medical degree from the University of Toronto in 1956, interned at Imanuel Hospital, Portland, Ore., and practiced in Canada.

Minnesota

DR. P. G. BOWMAN is the new chief of staff at St. Luke's Hospital in Duluth, succeeding Dr. E. I. Parson. Named chief of staff elect is Dr. J. J. Halbert. Other officers include Drs. J. E. Wall, secretary; R. J. Goldish, chief of internal medicine; L. R. Gowan, chief of neuropsychiatry; W. A. Klein, chief of orthopedics; P. N. Bray, chief of obstetrics; C. D. Eklund, chief of general practice; and J. M. Runquist, chief of the infirmary.

* * * *

DR. JAMES M. SHAFFER, a native of Luverne who once held medical and pharmacological teaching positions at the University of Minnesota and University of Michigan, has been named director of medical research at Merck Sharp & Dohme Research Laboratories, West Point, Pa. Dr. Shaffer was affiliated with McNeil Laboratories for ten years before assuming his present position. He will be responsible for clinical research with anti-inflammatory compounds.

* * * *

DR. L. EMMERSON WARD is chairman of the Mayo Clinic board of governors in Rochester. A specialist in rheumatic disease, he succeeds Dr. James T. Priestley, a surgeon who has been chairman since 1956. Dr. Ward went to Rochester as a Mayo Foundation fellow in 1946 and was made a member of the staff in 1950. He became a member of the board of governors in 1961, and vice-chairman in 1962. Elected vice-chairman is Dr. Oliver H. Beahrs, surgeon. J. W. Harwick, a member of the clinic's administrative group, has been reelected secretary.

* * * *

DR. R. O. BAAB has been appointed anesthesiologist for Bethesda and St. Francis hospitals in Crookston. After receiving his M.D. at Ohio State University, he was a member of the medical staff at the Red Lake, Minn., Public Health Service Indian Hospital. Following that he had residency training in anesthesiology at Ohio State University. His wife served on the PHS Indian Hospital nursing staff while the Baabs were at Red Lake.

* * * *

DR. JOHN E. SUTHERLAND, 1962 graduate of the University of Minnesota Medical School, has established practice in Marshall. He interned at Bethesda Lutheran Hospital, St. Paul.

* * * *

THE ST. PAUL HEALTH BUREAU plans a three-year study of the care of congestive heart failure victims. Close observation of patients in the city and suburbs will determine if those who recover from major cardiac attacks have proper treatment at home. The study is in cooperation with the Minnesota Department of Health as part of a nationwide U.S. Public Health Service project. Head of the St. Paul study is Dr. James Hammarsten, director of internal medicine at Ancker Hospital, St. Paul.

* * * *

DR. ROBERT G. TINKHAM, a fellow in physical medicine and rehabilitation at the Mayo Foundation, Rochester, since 1961, has been appointed to the Mayo Clinic staff as a consultant in the same section. A native of Minneapolis, he received his M.D. degree from the University of Minnesota.

* * * *

DR. W. F. NORDMAN, practitioner in Mora for more than thirty years, has retired from active practice. He went to Mora in 1930 after graduating from the University of Minnesota Medical School with internship at Hackensack, N.J. He had surgical training in New York City in 1940. With his associates, Drs. Harry Berge and E. C. Burseth, Dr. Nordman established the Mora Clinic in 1960. Dr. Nordman has served as chief of staff of the Kanabec Hospital in Mora and on district and state medical committees. He was secretary and president of the East Central Minnesota Medical Society and currently is a district delegate to the Minnesota State Medical Association and member of the American Academy of General Practice. Drs. Berge and Burseth have taken over Dr. Nordman's interest in the Mora Clinic.

South Dakota

DR. THOMAS K. HINES, has returned to his native Miller as a member of the Hand County Clinic. After graduation from Miller High School in 1952, he attended the University of South Dakota and received his M.D. degree from the University of Southern California. Dr. Hines took further work in aviation medicine while serving in the Navy.

* * * *

DR. WILLIAM R. TAYLOR, internist at the Aberdeen Medical Center, recently received an award as outstanding South Dakota physician of the year for his work in assisting the handicapped. The award was presented during a joint session of the state legislature by Gov. Archie Gubbrud. Dr. Taylor is a member of the Brown County Heart Association, a director of the Northeastern South Dakota Mental Health Association, and consultant to various state agencies counseling handicapped persons.

* * * *

DR. KARL-HEINZ KURT KOSSE has joined the Aberdeen Medical Center staff following four years residency in urology at the University of Vermont, Burlington, Vt. A native of Germany, Dr. Kosse received his medical degree from the Free University of Berlin in 1956 and interned at Orange Memorial Hospital, Orange, N.J., and City Hospital Berlin Moabit, West Berlin. He served with the West German government health department until his residency in Vermont.

(Continued on page 24A)

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Deaths . . .

DR. TOBIAS L. BIRNBERG, one of the first pediatricians in St. Paul and a former University of Minnesota staff member, died at his Beverly Hills, Calif., home at age 80. He had lived there since retirement in 1945. Dr. Birnberg was born in Vienna, Austria, received his medical degree from the University of Minnesota, and took postgraduate studies abroad in the early 1900s. He established pediatric practice in St. Paul in 1914. Dr. Birnberg also was assistant professor of pediatrics at the University of Minnesota and a lecturer at Ancker and St. Joseph's hospitals.

* * * *

DR. HARRY W. MILLER, a Casselton, N.D., physician for nearly fifty years, died January 19 in Van Nuys, Calif. He had retired in 1949 and was 81 years old at his death. Born in Wahpeton, N.D., Dr. Miller received his medical degree from the University of Minnesota and studied in Vienna for a year. He began his Casselton practice in 1911, following internship at the Northern Pacific Beneficial Association Hospital in Missoula, Mont.

* * * *

DR. BYRON E. HALL, 57, died in a light plane crash in California January 17. A former Mayo Clinic staff member, he had been in private practice in San Francisco since 1952 and was associate clinical professor of medicine in the Stanford University School of Medicine. Dr. Hall was born in Little Falls, Minn., attended the University of Minnesota, and received his M.D. degree from the University of Pennsylvania in 1933. After internship in Pennsylvania and a Mayo Foundation fellowship, he was appointed to the Mayo staff in 1937. Much of Dr. Hall's investigative work was in diseases of the blood.

* * * *

DR. NEWELL R. ZIEGLER, director of the University of Minnesota special immunology laboratory, died January 20 at age 64. He was in charge of the University Hospital Blood Bank from 1954 to 1958 and was active in development of blood transfusion techniques for open-heart surgery. He was a member of various national professional organizations, including the American Association for the Advancement of Science and the American Society of Microbiologists.

* * * *

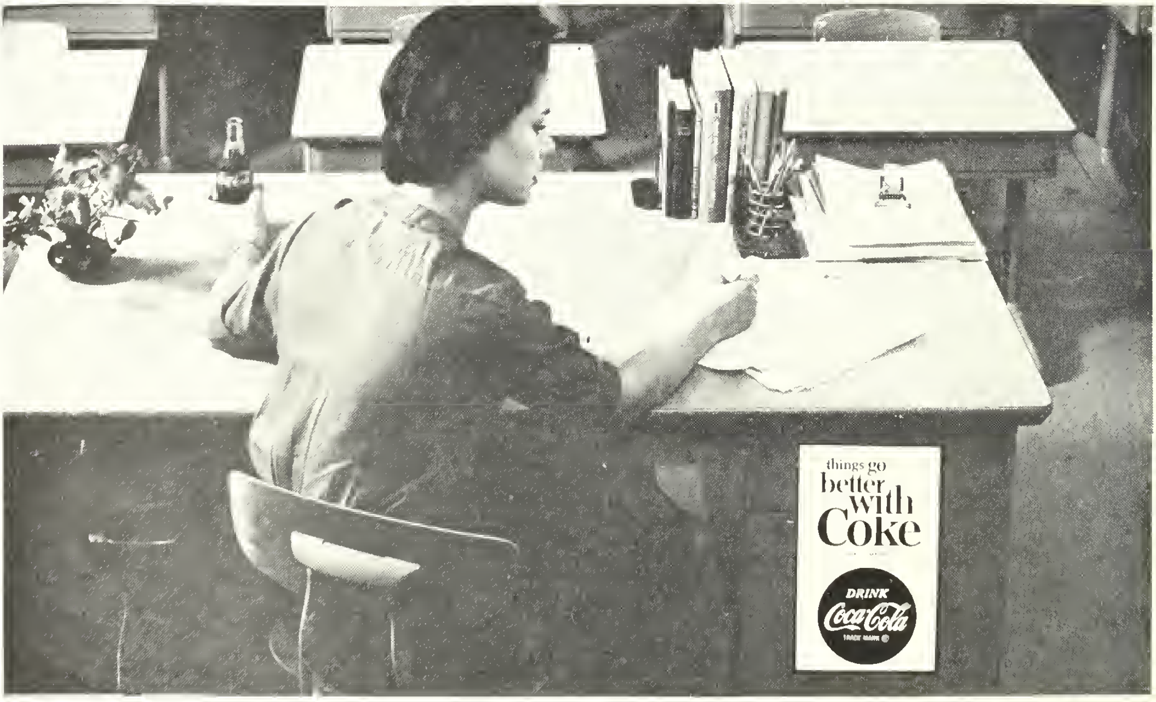
DR. SAMUEL E. SWEITZER, 86, who practiced in Minneapolis for 63 years, died February 14. He received his medical degree from the University of Minnesota in 1900. Dr. Sweitzer was formerly a staff member of the University of Minnesota Medical School and was a member of several professional organizations including the American Medical Association and the American Dermatology Society.

* * * *

DR. ALBERT C. HATCHER, 46, a 1946-49 Mayo Foundation fellow in obstetrics and gynecology, died in his native Wellington, Kan., in January after a heart attack. He was superintendent of the Hatcher Hospital at his death.

* * * *

DR. BERT V. LARES died in Minneapolis February 14 at age 89. Dr. Lares had practiced in the Minneapolis area for fifty years.



Whether you're a teacher correcting exams. A student cramming for them. A housewife cleaning up after the kids. Or a businessman working late at night. Whoever you are, things go better when you pause and refresh with ice-cold Coca-Cola.

COMING *in* June

Articles and features to be found in the next issue of THE JOURNAL-LANCET

During the past decade important strides have been made in the surgical treatment of acquired mitral and aortic valvular disease, according to Drs. C. Walton Lillehei, Raymond C. Bonnabeau, Jr., and Morris J. Levy, who are with the Department of Surgery, University of Minnesota.

In a paper on "Current Techniques in the Surgical Approach to Aortic and Mitral Valvular Disease," Drs. Lillehei, Bonnabeau, and Levy write that, initially, patients who underwent corrective surgery were treated only by closed or blind procedures. However, the next significant advance was the advent of open reconstructive operations utilizing the heart-lung machine, but as time passed and follow-up data were collected, the results were not as good as anticipated in all patients. Some patients would have benefited more by total removal of their diseased valve and complete replacement by an adequate prosthetic valve.

"With the development of the Starr-Edwards ball-valve prosthesis and the demonstration of its effectiveness," they write, "we have utilized total replacement of the diseased mitral and aortic valves in patients with acquired disease as the surgical treatment of choice when, at the time of surgery, it was felt that reconstruction would yield a poorer result."

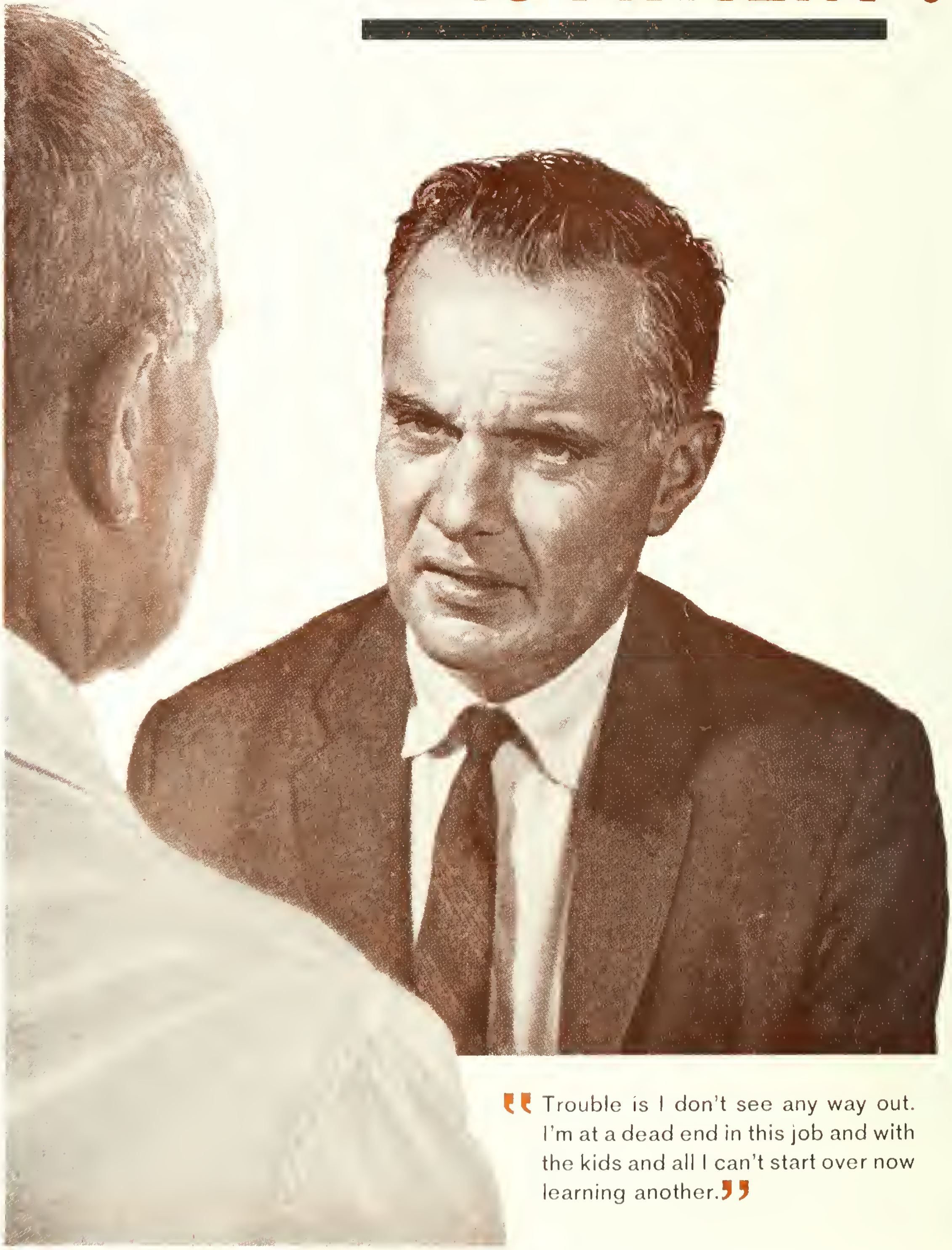
The doctors state that in earlier use of the Starr-Edwards ball-valve prosthesis for total replacement of the mitral valve they experienced a higher mortality than expected. An analysis of these patient deaths indicated that the mortality could be reduced if the mitral valve–chordae tendineae–papillary muscle continuity were kept intact.

In this article the doctors evaluate a series of their patients who have had mitral or aortic valve removal and replacement with a Starr-Edwards ball-valve prosthesis over the past two years (December 1, 1961, to December 1, 1963).

Among other papers scheduled to appear in the June issue are:

- **A Dermatologic Hobnob,** by W. L. Macaulay, M.D., Fargo Clinic, Fargo.
- **Obstruction of the Common Bile Duct in the Newborn by a Pancreatic Cyst,** by L. M. J. R. Pilot, M.B.Ch.B., J. G. Gooselaw, M.D., and P. G. Isaacson, M.B.Ch.B., School of Medicine, University of North Dakota, Grand Forks.
- **Pulmonary and Pleuropericardial Manifestations of Systemic Lupus Erythematosus in an Elderly Male Patient,** by Siegfried J. Kra, M.D., and O. Roth, M.D., Yale University School of Medicine and Hospital of St. Raphael, New Haven.

RECOGNIZE THIS PATIENT ?



“Trouble is I don't see any way out. I'm at a dead end in this job and with the kids and all I can't start over now learning another.”

The Journal-Lancet

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Fargo Clinic Series of Articles

Introduction

LAURENCE G. PRAY, M.D.
Fargo

As an introduction to the series of articles by staff members of the Fargo Clinic, a brief outline of the clinic structure and history might be of some interest.

There are 38 physicians on the clinic staff, including all major specialties. All physicians are board-certified or eligible for certification by their specialty boards. The organization is a private partnership, with new physicians eligible for membership as partners after two years on a salary basis.

The clinic was established in 1919 adjacent to St. Luke's Hospital. Since the 1930s, and especially since the end of World War II, the staff and the physical facilities have increased steadily in size. A recent new wing and air conditioning of the entire clinic building have made the present plant adequate and pleasant for patients and physicians alike. A number of neighboring buildings have been purchased and removed for ever-increasing parking needs. Approximately 600 patients are seen daily by the medical staff, with the assistance of 150 nurses, laboratory technologists, x-ray technicians, and other auxiliary personnel.

Since the beginning there has been a close physical and professional relationship with St. Luke's Hospital. Built in 1909, St. Luke's now has 240 beds, which will soon be increased by the addition of an 80-bed neuropsychiatric wing. Originally a Lutheran institution, St. Luke's is now owned and supported by an association of all Protestant churches in the immediate area. The medical staff is open to all physicians in the community, but the great majority of the active staff is from the Fargo Clinic. St. Luke's is a fine, modern hospital which is constantly growing and improving its facilities.

Concluding on a personal note, one of the chief pleasures of serving on The Journal-Lancet editorial board has been the opportunity of knowing and working with Dr. J. Arthur Myers, chairman. His stimulating, friendly leadership has inspired many of the papers and series of articles published in The Journal-Lancet.

LAURENCE G. PRAY *is with the Fargo Clinic.*

Fibrocystic Disease of the Pancreas

(Cystic Fibrosis. Mucoviscidosis)

LAURENCE G. PRAY, M.D.
Fargo

Fibrocystic disease of the pancreas (cystic fibrosis, mucoviscidosis) is a congenital disease of the exocrine glands which is almost invariably fatal during infancy or childhood. Three systems are primarily involved: (1) the respiratory tract, (2) the digestive tract, and (3) the sweat glands. The disease is genetically inherited as a recessive mendelian trait which must be carried by both parents. In that case, the probabilities are 1 in 4 that any child of such parents will be affected; there are 2 chances in 4 that he will be a carrier. This leaves 1 chance in 4 that an offspring will neither have the disease nor be a carrier. Incidence of the disease in the population is estimated at about 1 in 5,000. Both sexes are affected equally.

Dr. Dorothy Andersen[1] of the New York Babies Hospital and Columbia University was the first to identify the disease in 1938. Her original premise was that pancreatic fibrosis and insufficiency were the primary defect and that the progressive lung changes were due to secondary vitamin A deficiency with squamous metaplasia of the bronchial mucosa. She observed the tendency of patients to perspire excessively and to lose excessive salt in hot weather and during illness, but it was not until 1953 that Darling[2] and di Sant' Agnese[3] demonstrated the abnormally high levels of sodium, chloride, and potassium in the sweat of these patients.

Infants with fibrocystic disease usually appear normal at birth, although meconium ileus occurs in 5 to 10% of patients, intestinal obstruction or peritonitis being evident at birth. Ordinarily the first symptoms appear within the first few weeks or months. Early symptoms include: failure to gain weight; loose, bulky, foul stools; and a persistent cough following respiratory infections.[1]

DIAGNOSIS

Respiratory symptoms with progressive lung changes and complications are invariably the cause of death in patients surviving the newborn period. Thick, sticky mucus in the respiratory passages causes obstruction, infection, pneumonia, patchy emphysema and atelectasis, and associated complications. Cor pulmonale is a frequent accompaniment of advanced lung fibrosis and infection (Table 1).

Gastrointestinal symptoms. Poor digestion with fatty, bulky, and loose stools is secondary to pancreatic fibrosis and reduced enzyme levels in the intestinal tract. Poor weight gain and poor nutrition are the result.

Meconium ileus is most common in the terminal ileum, causing obstruction or peritonitis which is present at birth.

Laboratory findings. The determination of sweat electrolytes has become the most reliable single laboratory test for diagnosis of fibrocystic disease, being elevated in 98% of patients.[5,6,7] Levels of sodium above 70 mEq. per liter and chloride above 60 mEq. per liter are considered abnormal and consistent with a diagnosis of cystic fibrosis, although levels are considerably higher in most patients and may be more than twice the normal values. Marked elevations of sweat electrolytes have not been found in other childhood diseases, although moderate elevations have been reported in allergic states, adrenal insufficiency, and possibly in healthy siblings of patients with fibrocystic disease. Some increase in sweat sodium and chloride occurs with advancing age and in adults ill with bronchiectasis, pulmonary emphysema, peptic ulcers, and diabetes. Testing can be performed on 1 to 2 ml. of sweat, which can be obtained by placing a patient in a plastic bag for thirty to sixty minutes in a warm room, the method we use routinely, or by pilocarpine iontophoresis of a forearm.[8] A simple

LAURENCE G. PRAY *is with the Department of Pediatrics of the Fargo Clinic, and St. Luke's Hospital.*

screening test for elevated sweat chloride is to place the patient's hand on agar impregnated with silver nitrate; a yellow precipitate of silver chloride will form if sweat chloride is elevated.

Until a few years ago the assay of trypsin in duodenal juice was the best diagnostic test for pancreatic fibrosis. This test is more time-consuming and less reliable than the sweat electrolyte test, yielding normal values in 15% of patients. However, it is still a valuable test in borderline cases. Duodenal drainage is accomplished fairly easily by introducing a no. 10 Levine tube into the duodenum under fluoroscopic visualization. The fluid is ordinarily alkaline and viscous. Trypsin, lipase, and amylase are all lowered or absent; less than 20 trypsin units per milliliter indicate pancreatic insufficiency if the fluid is properly drawn. Levels tend to become lower as the disease progresses.

Lowered tryptic digestion of x-ray film by serially diluted stool samples has been used as a screening test in the past. It is not entirely reliable and, since the advent of the sweat test, has been almost abandoned. Normal tryptic digestion is indicated by a clear area on the film underneath the drop of stool; in the absence of tryptic activity, the film remains unchanged.

There are no characteristic alterations in the red or white cells. Hypochromic anemia is common in infancy. Pulmonary infections are accompanied by leukocytosis and an elevated sedimentation rate.

Hemolytic Staphylococcus aureus is the most common organism cultured from the nose and throat of patients. Hemolytic streptococcus, pneumococcus, Pseudomonas aeruginosa, Proteus vulgaris, Escherichia coli, and others may be involved at one time or another.

Roentgenologic findings. Characteristic lung changes consist of thickened hilar shadows, with patchy areas of density in both lung fields. These changes may not be permanent or pronounced in the early stages, but involvement is progressive over a period of time. Late in the disease right ventricular strain causes a characteristic cardiac shadow.

Pansinusitis is a common x-ray finding in older children. Long bones show no abnormality except osteoporosis; bone age is normal.

The intestinal pattern is similar to that seen in celiac disease, alternate intestinal segments showing spasm and dilation. Obstruction caused by meconium ileus results in gas bubbles and fluid levels in the upper abdomen and opacity in the right lower quadrant. The caliber of the intestine distal to the obstruction is small and atrophic.

TABLE 1

DIAGNOSIS

I. Symptoms
    A. Gastrointestinal
        1. Meconium ileus (5-10% of patients)
        2. Stools—bulky, foul, fatty, loose
        3. Poor digestion, weight loss
    B. Respiratory
        1. Excessive sticky mucus in respiratory passages
        2. Bronchial infection, pneumonia
        3. Bronchial obstruction, patchy emphysema, patchy atelectasis, bronchiectasis, abscesses, pneumothorax
        4. Secondary cor pulmonale

II. Laboratory findings
    A. Duodenal juice—viscid, scant, alkaline; trypsin, lipase, amylase reduced or absent
    B. Stools—reduced digestion of x-ray film (low trypsin); increased fat
    C. Sweat electrolytes—increased NaCl and K. Normal Na < 70 mEq. per liter, Normal Cl < 60 mEq. per liter
    D. Blood count—normal, hypochromic anemia
    E. Urine—normal
    F. Cultures of nose and throat—hemolytic staphylococcus, streptococcus, Pseudomonas, Proteus, E. coli.

III. X-ray findings
    A. Intestinal—meconium obstruction, small caliber distal segment, proximal fluid levels and gas bubbles. Loss of normal pattern, alternate dilation and spasm
    B. Pulmonary—progressive fibrosis, etc.
    C. Cardiac—cor pulmonale
    D. Bones—osteoporosis, otherwise normal
    E. Sinus—infection

IV. Differential diagnosis
    A. Congenital atresia of intestine
    B. Celiac disease
    C. Asthma, pertussis, bronchitis
    D. Family history helpful

DIFFERENTIAL DIAGNOSIS

Meconium ileus must be differentiated from congenital anomalies of the intestinal tract with obstruction. The digestive disturbance in cystic fibrosis closely simulates celiac disease, but the lack of respiratory involvement in celiac disease, plus a positive sweat test in cystic fibrosis, readily differentiates the 2 diseases. The pulmonary signs and symptoms sometimes suggest whooping cough, asthma, or primary infectious bronchitis and bronchiectasis. The clinical findings and course must arouse an index of suspicion on the part of the physician. The family history may also be helpful if a sibling has died of pneumonia in infancy or early childhood or if meconium ileus has occurred previously in the family. Once suspicion is aroused, the diagnosis can be confirmed by the sweat test and other laboratory and x-ray studies.

PATHOLOGY

The histology of the sweat glands and mucus-secreting glands is normal, but the underlying defect in cystic fibrosis is an elevation of sweat electrolytes and secretion of viscous, sticky mucus high in mucoproteins. In the pancreas these tenacious secretions cause obstruction and progressive changes consisting of dilation of acini and ducts, with subsequent fibrosis and atrophy of parenchymal cells along with some fat replacement. The islets of Langerhans are rarely affected.

The same type of obstructive changes in the respiratory passages causes poor drainage and consequent infection, emphysema, atelectasis, fibrosis, and multiple abscesses. Right ventricular cardiac dilation is often found at autopsy.

Meconium ileus is caused by a putty-like, thick meconium gel which cannot pass along the intestinal tract; it contains an excess of mucoprotein and is due, in part, to lack of enzyme activity in the intestines.

In the liver the intrahepatic bile ducts become obstructed with resultant fibrosis, fatty infiltration, and, occasionally, cirrhosis. In rare cases splenomegaly and esophageal varices have been reported. The gallbladder is small and contains gelatinous fluid but no bile.

TREATMENT

Digestive. Patients with pancreatic insufficiency require a large caloric intake with high-protein, low-fat diet. Small infants may require up to 200 calories per kilogram per day. Water soluble vitamins are given in twice the usual amounts for any given age. The formula should be supplemented with casein hydrolysate. Simple sugars may be added. Frequent feedings are indicated. Solid foods, including meat, should be started at two months of age. Older children require a high-protein diet with moderate restriction of fatty foods and with high caloric snacks in the afternoon and at bedtime.

Pancreatic enzymes (pancreatin) added to the diet result in improved digestion and absorption of protein, fat, and possibly starches. It should be mentioned, however, that there is some difference of opinion concerning their value, together with the factor of rather high cost. The dosage of pancreatin is 0.5 gm. of powdered pancreatin in each bottle during infancy and 1 to 2 gm. of powdered or granular pancreatin with each meal during childhood, mixed with apple sauce, honey, or other foods.

A normal amount of salt is included in the diet, except during hot weather or febrile episodes when 1 to 2 gm. are added to the infant's daily diet and 2 to 4 gm. given the older child.

TABLE 2

SYSTEMIC ANTIBIOTICS

Tetracycline	30-100 mg. per kilogram per day
Sulfisoxazole (Gantrisin)	0.2 gm. per kilogram per day
Penicillin	600,000-1,200,000 units per day
Sodium methicillin (Staphcillin)	100 mg. per kilogram per day
Chloramphenicol (Chloromycetin)	30-100 mg. per kilogram per day
Erythromycin	30-50 mg. per kilogram per day
Colistimethate sodium (Coly-Mycin)	2-5 mg. per kilogram per day
Novobiocin	30-50 mg. per kilogram per day
Kanamycin sulfate	15-30 mg. per kilogram per day intravenously

In resistant staphylococcus infection: bacitracin 200 units per kilogram per day intramuscularly and neomycin 7.5 to 15 mg. per kilogram per day intramuscularly

In resistant Pseudomonas aeruginosa: polymyxin 2.5 mg. per kilogram per day intramuscularly

Pulmonary. Since the lungs cannot be kept clear in spite of all measures to that end, these patients live in constant danger of developing infections. Clinical evaluation at monthly or bimonthly intervals is considered essential to proper care and supervision, with emphasis on the status of the lungs and nutrition. Cultures and other laboratory tests are carried out as indicated.

Antibiotics are the cornerstone of treatment and prevention of infection. They are given orally, intravenously, intramuscularly, by aerosol inhalations, or by a combination of these routes. The choice of antibiotics depends on clinical judgment, supported by the results of nose and throat cultures and sensitivity tests. Table 2 shows the various systemic antibiotics and sul-

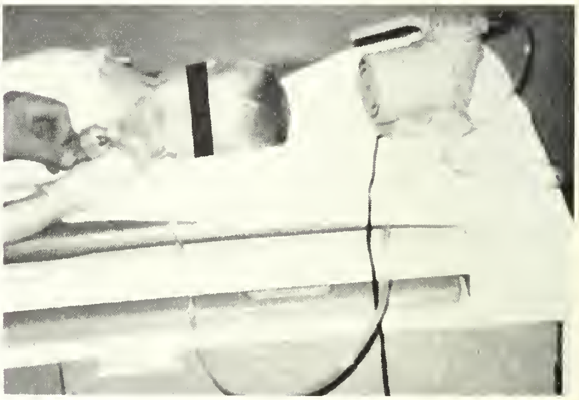

Fig. 1. Infant with cystic fibrosis receiving aerosol therapy. Note portable compressor, nebulizer, and mask.

TABLE 3
AEROSOL ANTIBIOTICS

	Per milliliter
Penicillin	100,000 units
Tetracycline	50 mg.
Polymyxin	4 mg.
Chloramphenicol (Chloromycetin)	50-100 mg.
Neomycin	50-100 mg.
Kanamycin	50 mg.
Bacitracin	5,000 units
Streptomycin	50 mg.

TABLE 4
SURVIVAL INFORMATION ON 16 PATIENTS WITH CYSTIC FIBROSIS

Age at death	*Number of patients*
Under 1 year	1 (1½ months)
1 to 2 years	1
2 to 3 years	1
5 to 6 years	2
6 to 7 years	1
7 to 8 years	1
Status unknown	2
Living	7

fonamides which may be used and their dosages.[9] In general, the dosage of the tetracyclines is 40 to 50 mg. per kilogram body weight per day for acute infections and 20 mg. per kilogram for prophylaxis. Prophylaxis is advised if acute pulmonary infection has occurred within the previous few weeks or months or when there are advanced x-ray changes in the lungs.

Aerosol inhalations (Fig. 1) are used in acute or advanced infections, but their daily use in patients with minimal bronchitis and emphysema is not of settled value. Some authorities, however, recommend prophylactic as well as therapeutic use of aerosol therapy. In view of the mixed flora in the respiratory tract in many patients, it is often helpful to use some of the more toxic antibiotic agents by this route because of low systemic absorption. These include neomycin, polymyxin B sulfate, and bacitracin. Table 3 shows the various antibiotics and solutions which are used. Two milliliters of solution are administered for ten minutes before each meal and at bedtime. Phenylephrine hydrochloride (Neo-Synephrine), isoproterenol (Isuprel), and the enzymes tryptar or pancreatic dornase are used for specific indications; enzymes are of questionable value and may cause bronchial irritation. Efficient portable equipment is manufactured by several companies for home or hospital use. The nebulizer must deliver a small-particle mist (5 to 10 micron diameter). Equipment tends to get clogged and gummy, and it must be cleaned frequently.

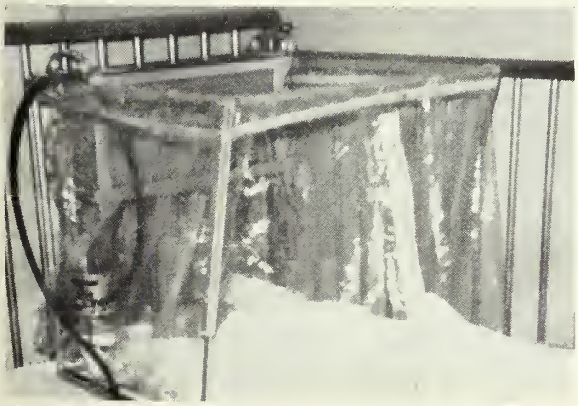

Fig. 2. Mist tent in use at St. Luke's Hospital

Fig. 3. Siblings Barbara and David G. with cystic fibrosis. Both children later died, Barbara at 5 years of age, David at 7 years.

Mist tents (Fig. 2) are used with benefit at night, during naps, and continuously during acute pulmonary infections. Small-particle nebulizers are used, with compressed air or oxygen to operate them. Ten percent propylene glycol or 0.5 M. NaCl may be used instead of water, although NaCl may increase the incidence of hemoptysis if used for long periods. Home humidifiers are also recommended to keep the humidity about 50% if possible.

Other measures for increasing drainage of pulmonary secretions include postural drainage, breathing exercises, chest clapping, and vibration. Intermittent positive-pressure breathing treatments are used in specific cases. Physical activity is maintained as normally as the patient's strength permits. The services of a physical therapist are enlisted in supervising the breathing exercises and related procedures.

Medications of value include expectorants, such as potassium iodide and aminophylline, antihistaminics, ephedrine, and isoproterenol inhalations. Respiratory allergies sometimes require desensitization procedures. A warm, moist climate is preferred but is not of sufficient benefit to justify financial hardship for that purpose.

Prevention of infection is carried out whenever possible. Immunizations against whooping cough, measles, and influenza are especially important because of involvement of the respiratory system in those diseases.

Surgical. Surgery is needed in some patients. Removal of infected tonsils and adenoids, sinus drainage, and removal of nasal polyps are among such procedures. Lobectomy is indicated for severe localized lung disease. In patients with portal hypertension and esophageal varices, shunt procedures are lifesaving. In meconium ileus a double-barreled ileostomy is the best surgical procedure, permitting irrigation and clearing of proximal and distal intestinal segments; closure can be carried out in a few weeks, after the intestinal lumen is open and functioning normally.

PROGNOSIS

Cystic fibrosis is generally considered a fatal disease. Life expectancy has increased through the last twenty-five years, first as a result of diet and pancreatin and sulfonamide therapy, then antibiotics, and more recently with the use of various agents by aerosol and mist, as well as by such adjuvant means as postural drainage, chest vibration and clapping, and others. Originally fatal during infancy or early childhood, the most favorable statistics known personally are from the cystic fibrosis center of the Children's Memorial Hospital, Chicago,[10] which reports 40% of patients still alive at 10 years of age and 20% at 20 years. While no way has been found to counteract the underlying defect, it is possible, more than ever before, to prevent malnutrition, combat infection, and maintain adequate pulmonary drainage.

CLINICAL MATERIAL

Over an eleven-year period my colleagues and I have cared for 16 infants and children with cystic fibrosis (Table 4). With 1 or 2 exceptions, suspicious respiratory or intestinal symptoms have become evident within the first few months of life. Two infants had meconium ileus, 1 with obstruction and intestinal perforation with surgical intervention on the first day of life, the other with equivocal signs and symptoms confirmed by later development of typical pulmonary changes. The majority of patients have been under our care continously, although several were seen only in consultation on one or several occasions.

Two of the most classical cases were a sister (B.G.) and brother (D.G.). The parents and another child, an older daughter, were in good health. I first met this understanding and courageous family in the spring of 1947 when I was asked to see Barbara, age 5 months, who was ill with a severe bronchial infection with spasmodic cough first thought to be whooping cough. She made a slow but satisfactory recovery from that illness but soon began having recurring bouts of cough associated with diarrhea, poor weight gain, and anemia, requiring antibiotics, blood transfusions, and special diet. In spite of her continuing symptoms and progressive lung changes she grew into an intelligent, sweet little girl (Fig. 3). At about 5 years of age her condition deteriorated and she died at St. Luke's Hospital, Fargo, on April 29, 1952.

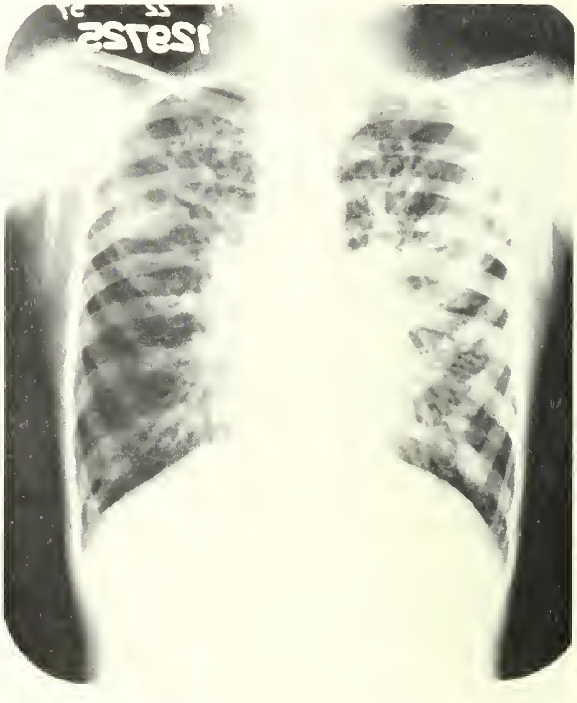

Fig. 1. Chest x-ray of D.G. showing advanced stage of pulmonary fibrosis and patchy infiltration

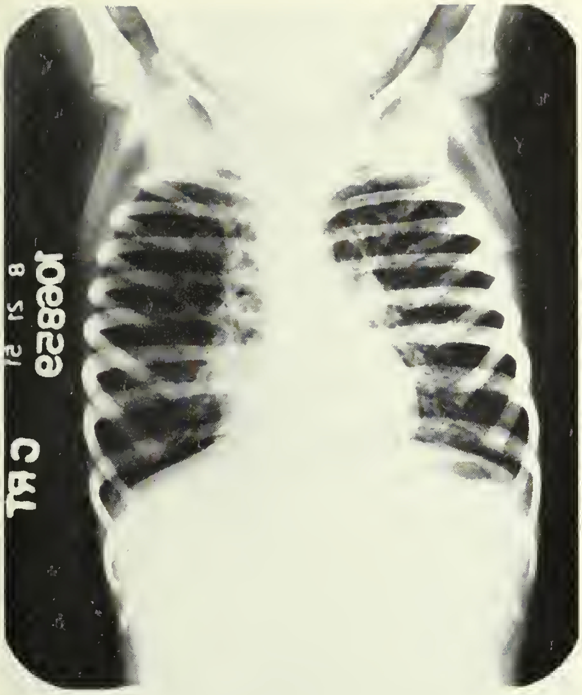

Fig. 5. Chest roentgenogram of B.G. showing moderate but irreversible pulmonary fibrosis most marked in hilar regions of lungs

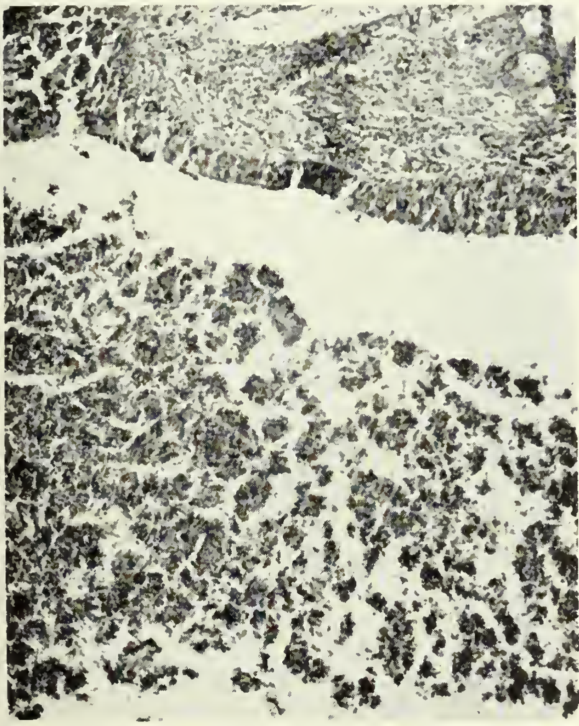

Fig. 6. D.G. Microscopic changes in lungs under high magnification. Small bronchiole filled with polymorphonuclear leukocytes and greatly dilated. Peribronchial inflammatory infiltration in upper portion of picture, and mucous glands distended with granular material. Extensive bronchopneumonia elsewhere

The younger brother, David, was born on September 19, 1949. His course was similar to Barbara's, although he lived over two years longer and was in the second grade in school at the time of his death on February 22, 1957. He had acute pneumonitis and cor pulmonale as terminal complications. During his first two years he had several normal enzyme assays of duodenal juice and stool digestion, giving us some slight hope regarding diagnosis. This proved fruitless as time went on and symptoms progressed. X-ray changes in David's lungs on January 22, 1957, may be seen in figure 4, when he was having severe pulmonary symptoms and approaching a terminal state. This film shows much more extensive fibrosis than figure 5, an x-ray film of Barbara's chest on August 21, 1951.

Autopsy findings were similar in both children, with marked pancreatic and pulmonary fibrosis, cor pulmonale, and fatty liver infiltration (Figs. 6 and 7). In addition to pulmonary fibrosis, there were multiple abscesses, emphysema, and atelectasis; there was acute pneumonitis in David's case.

Meconium ileus is illustrated by the case of S.M. This male infant was born at St. Luke's Hospital, Fargo, on June 12, 1962. He weighed 7 lb. 10 oz. and was in apparent good condition. However, he became distended and vomited on the day of birth. X-ray studies showed dilated stomach and jejunum, with a hypoplastic colon (Fig. 8). Surgery was performed the same day, with findings of volvulus and perforation of the proximal ileum. Resection and irrigation of proximal and distal segments were carried out, followed by primary anastomosis. Heavy sticky meconium filled the intestinal lumen at the surgical site. The baby was maintained on gastric suction and continuous intravenous fluids for several days. It then became obvious that obstruction was still present, and a double-barreled ileostomy was done. Daily irrigations with normal saline solution and pancreatin solution created an open lumen proximally and distally. Feedings were then successful for a time, but with increasing bouts of vomiting and dehydration. The baby died on July 25 at a little over 6 weeks of age. Autopsy revealed volvulus of the proximal jejunum as the cause of the intermittent failure to retain feedings. The parents and a sibling of this infant are in good health, with normal sweat electrolytes. Another sibling born in Alaska had died of intestinal obstruction of an unspecified type at a week of age.

The other patient with meconium ileus (D.A.) was born at St. Luke's Hospital on June 3, 1954. All findings were normal at birth. Birth weight was 6 lb. 11 oz. He passed 2 or 3 small, dry meconium stools on the second day. On the third day he became moderately distended. Rectal examination revealed a constriction at the junction of the rectum and sigmoid colon. Colon x-ray showed the colon to be of small caliber throughout its length. The abdomen showed a pattern characteristic of partial low intestinal obstruction. Daily enemas of normal saline solution were given. The distension subsided and the baby's clinical course and stools were then normal. At a month of age the family moved to California where the infant had excellent care at a university hospital. There were no suspicious symptoms of cystic fibrosis at that time. At 11 months of age the family returned to Fargo, and the baby was brought in because of a persistent respiratory infection and cough of a month's duration. Clinical and laboratory findings confirmed the diagnosis of cystic fibrosis. Death occurred in California at the age of 26 months from pulmonary disease.

The other patients in our series manifested pulmonary and digestive symptoms and changes in varying degrees. Seven patients are still living at the time of this report; none is over 12 years of age. No report was obtainable on 2 patients.

COMMENT

Our material illustrates the possible variations in the clinical findings and course of fibrocystic disease. Diagnosis in the early stages of pulmonary involvement may be confused with pertussis, asthma, or recurrent bronchitis. When digestive symptoms are present without respiratory complaints, celiac disease may have to be considered. Partial meconium ileus and hypoplastic colon in one of our patients should have aroused a stronger index of suspicion in the neonatal period than was the case.

Laboratory tests are helpful in diagnosis, but even they are sometimes misleading. The most reliable test at present is the determination of sweat electrolytes, which has become widely accepted and used during the past decade. Its reliability is close to 100%. Lowered trypsin, amylase, and lipase in duodenal juice is the next most reliable laboratory test, but it may yield false-negative results in 15% of patients. This is especially true in the earlier stages of the disease before advanced changes in the pancreas have occurred. We have had several such misleading results. Tryptic digestion of serial dilutions of stool on x-ray film has been used as a screening test in the past but has been largely abandoned because of its relative unreliability as compared

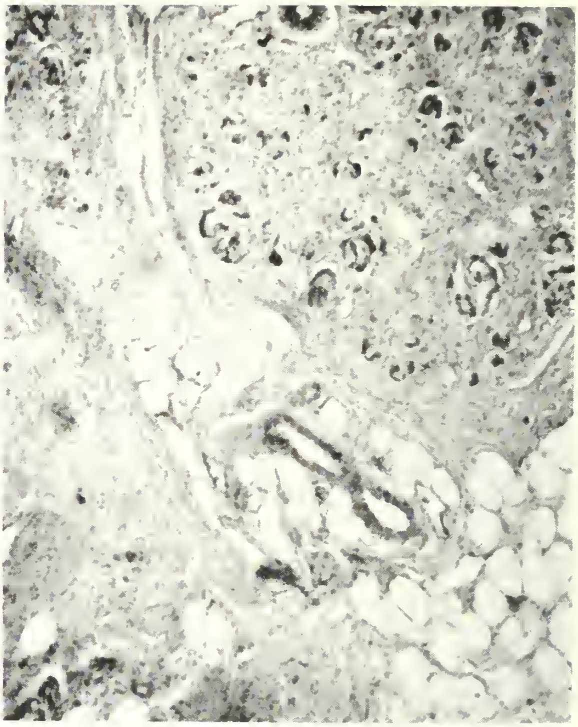

Fig. 7. B.G. Microscopic changes in pancreas under high magnification. Marked atrophy of pancreatic parenchyma with replacement fibrosis. Ducts dilated and contain inspissated amorphous material. Islets of Langerhans intact

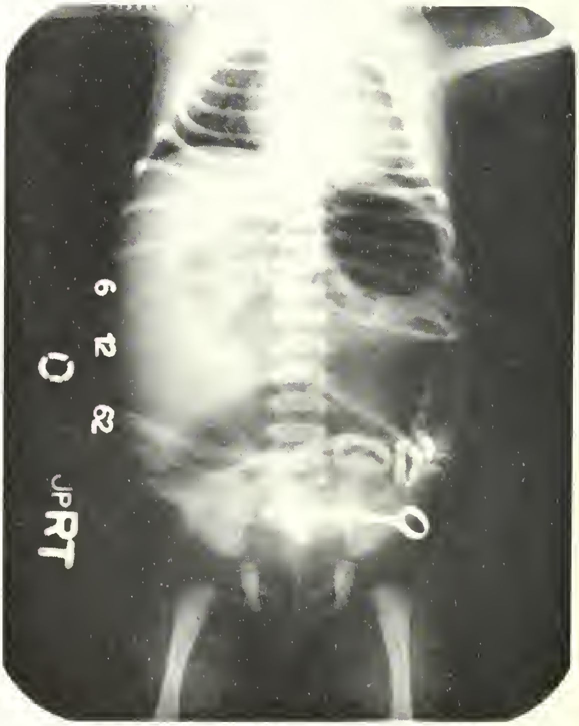

Fig. 8. S.M. Barium enema showing small caliber of large bowel, dilated loops of small intestine, stomach filled with gas bubble

with the sweat test. The same might be said of the silver nitrate agar palm test.

Treatment of our patients has been along accepted lines. Until recently, however, we have not routinely advised home aerosol and mist therapy, which appear to have definite merit.

The incidence of cases in a busy 4-man department, 16 in eleven years, seems quite small. This is especially true when one considers that close to half of our patients were referred from other physicians. Cystic fibrosis centers throughout the country treat large numbers of cases, each center receiving patients from a wide area.

SUMMARY

A review of cystic fibrosis has been presented, together with a resumé of our own experience with the disease over an eleven-year period. Advances in diagnosis and treatment are of particular interest. First identified by Dr. Dorothy Andersen in 1938, life expectancy has increased from a few months or a few years to a possible survival until later childhood and occasionally even to adult life.

Presented at the annual meeting of the North Dakota State Medical Association, May 6, 1963, and at the fall meeting of the Northwestern Pediatric Society, September 27, 1963.

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GASTRIC HYPOTHERMIA in dogs and pigs induces focal freezing with localized necrosis. Extent of necrosis depends on depth of freezing. The use of alcohol below the freezing point of tissue does not assure freezing. The stomach freezes only if its temperature is first reduced to its freezing point and then an additional 80 calories, the latent heat of infusion of water, are removed from each gram of water present. The transfer of heat from the stomach to a cold gastric balloon induces freezing in proportion to the area and time of contact and the differential between the temperature of the tissue and the alcohol. The likelihood of freezing is increased by use of colder alcohol, longer operation of the system, use of thinner balloons, more exact fit of balloons to stomach contours, faster alcohol flow, and reduction in the rate of gastric blood flow. Gastric hypothermia was performed in 10 dogs and 3 pigs, with alcohol and body temperatures ascertained by thermojunctions. Large animals generally had less severe systemic hypothermia and more limited areas of freezing than small ones. Necrosis developed three to five days after thawing. In extensively frozen areas, necrosis involved all layers and resulted in perforations that became sealed by omentum. Patchy sloughing of mucosa resulted in superficial ulcerations.

DONALD C. MC ILRATH, M.D., GEORGE A. HALLENBECK, M.D., HUBERT A. ALLEN, M.D., CHARLES V. MANN, M.D., EDWARD J. BALDES, PH.D., ARNOLD L. BROWN, JR., M.D., and RANDOLPH A. ROVELSTAD, M.D., Mayo Clinic and Foundation, Rochester, Minn. Gastroenterology 45:374-383, 1963.

Unusual Symptom Complex from Massive Hydronephrosis

Case Report

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and HARVEY M. MORAL, M.D.
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Large renal masses frequently will make their presence known by the effects produced on contiguous intraperitoneal structures. In the case of a right renal mass with impingement on the duodenum and its biliary system or the hepatic flexure, various symptom complexes could develop. In 1948 one of us (S.S.B.) reported in the *Journal of Urology* a case of obstructive jaundice associated with massive right hydronephrosis.

In this report a problem of bowel symptomatology produced by a very large left hydronephrosis will be presented.

CASE REPORT

The patient, a 59-year-old white male laundry worker, was admitted to the Glenwood Hills Hospitals, Minneapolis, Minnesota, on August 7, 1963, for investigation of a large left abdominal mass. The patient had previously been seen by his physician with a one-month history of continual diarrhea and a 20-lb. weight loss. He also complained of a "soreness" in his epigastrium of two weeks' duration. His appetite had always remained normal and he had no urinary complaints whatsoever. On physical examination, the patient's temperature was 99.6°, pulse 76 per minute, respirations 16 per minute, and blood pressure 130/70. He was well-developed, well-nourished, and in no acute distress. Physical examination was within normal limits except for the examination of the abdomen. With the patient lying supine, a protuberant mass of the left abdomen could be seen. On palpation, this mass was smooth, firm, and slightly tender.

Laboratory examination revealed a hemoglobin of 14.2 gm. percent. The white blood cell count was 7,600 with a normal differential. Urine-specific gravity was 1.010; albumin, sugar, and microscopic examinations were negative. Urine culture was sterile. Blood urea nitrogen was 17 mg. percent; fasting blood sugar was 104 mg. percent. Chest x-ray and electrocardiogram were normal.

Special x-ray examinations included a flat plate of the abdomen (Fig. 1) which showed a large mass density in the left upper abdominal quadrant with displacement of most of the bowel to

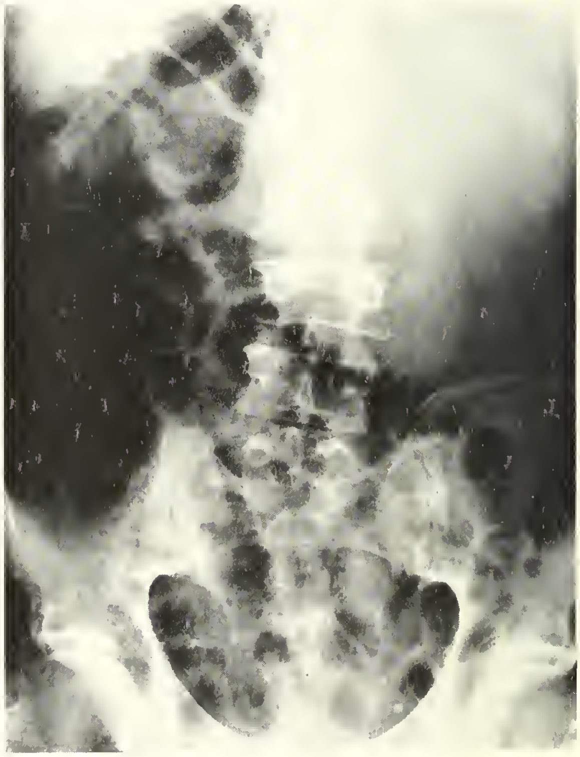

Fig. 1. Mass density in left upper quadrant of abdomen with displacement of bowel

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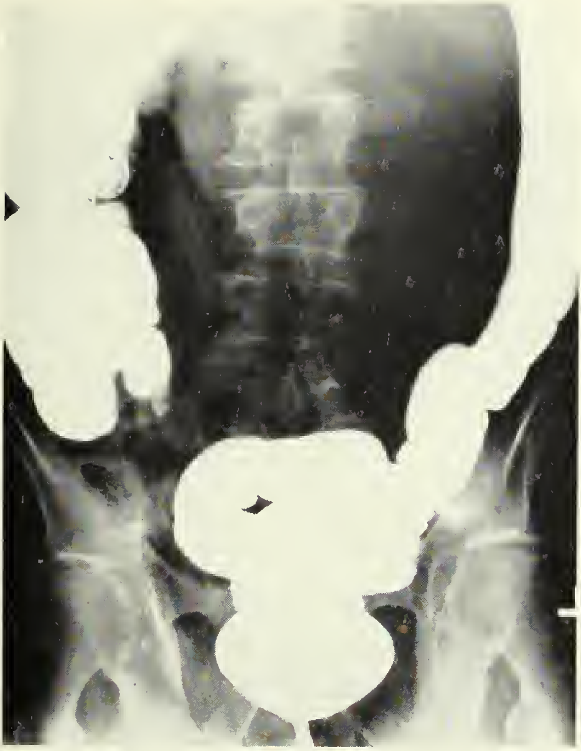

Fig. 2. Barium enema showing stretching of colon over left abdominal mass

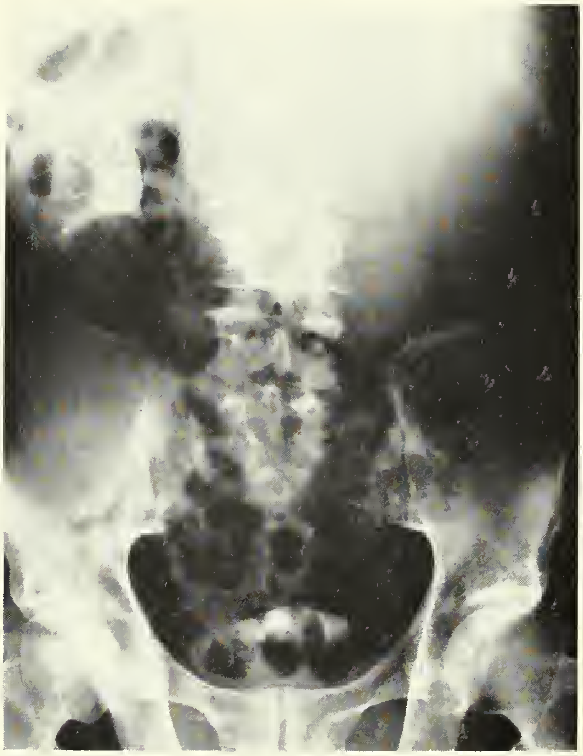

Fig. 3. Twenty-minute intravenous pyelogram film showing no visible left renal function, normal right kidney with compensatory hypertrophy

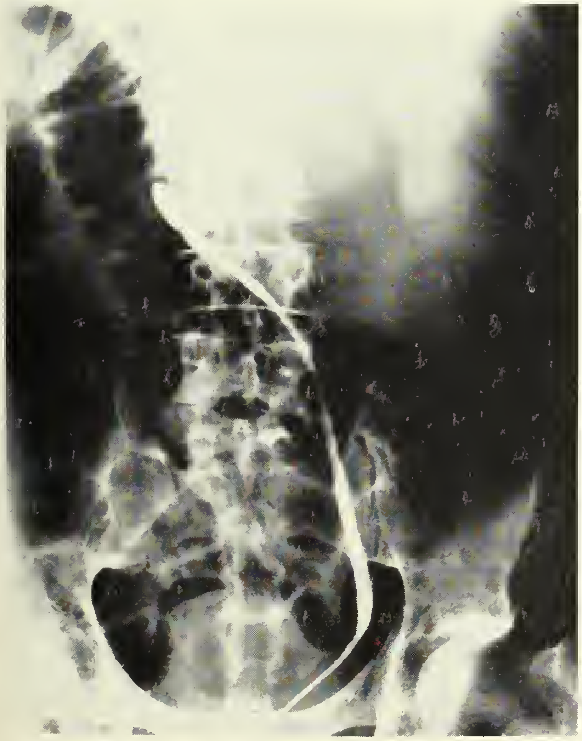

Fig. 4. Left bulb retrograde pyelogram. Displacement of left ureteropelvic junction across midline and deformity of ureteropelvic junction

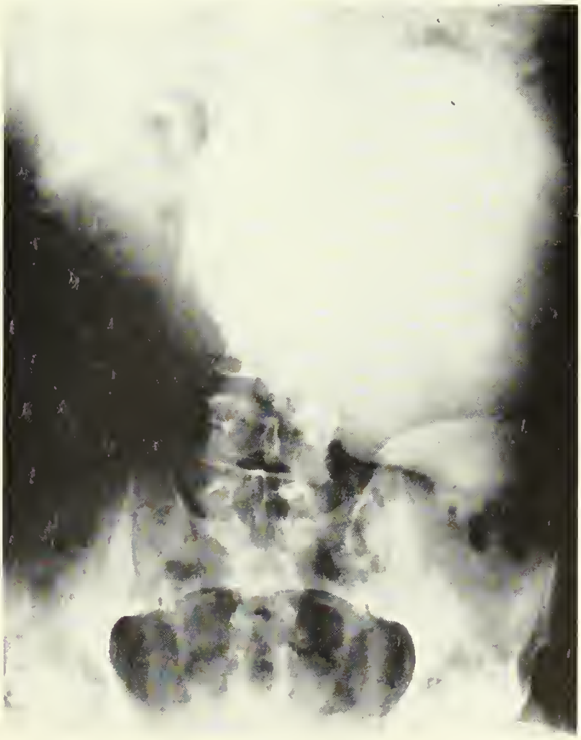

Fig. 5. Left pyelogram film showing enormous size of left renal collecting system after filling with 120 cc. of contrast material

the right. A barium enema (Fig. 2) showed the colon to be stretched over the mass but not intrinsically involved by it. Intravenous pyelograms (Fig. 3) showed a hypertrophied, but normal, right kidney with no evidence of a functioning left kidney. Because of the findings on intravenous pyelogram, cystoscopy and left retrograde pyelography were done. The trigone was normal with a normal-appearing left ureteral orifice. A bulb pyelogram (Fig. 4) portrayed the left ureter to be markedly displaced to the right in the upper portion, and the left ureteropelvic junction was displaced to the right of the midline and grossly deformed. After further filling of the left renal pelvis with an additional 120 cc. of contrast material, the final pyelogram film (Fig. 5) was obtained; this showed a huge pyelocaliectasis. Because of the marked left hydronephrosis and the severity of the gastrointestinal symptomatology, it was elected that left nephrectomy should be done. On August 20, 1963, under general anesthesia, the left kidney was explored through a left flank incision. A markedly thinned-out, distended left renal mass was found. This was aspirated, and approximately 2,300 cc. of clear amber fluid was withdrawn. Nephrectomy and upper ureterectomy was then accomplished without entering the peritoneal cavity. Two large Penrose drains were employed for drainage in the closing of the wound. Examination of the surgical specimen revealed the presence of a noncalculus ureteropelvic junction obstruction, probably congenital in origin.

Postoperatively, the patient had a benign course. The Penrose drains were removed on the sixth postoperative day, and the patient was discharged on the eighth postoperative day. He has had no recurrence of his preoperative diarrhea. When last seen, on September 9, 1963, the surgical wound was well-healed, and the patient was continuing to gain weight, still being about 5 lb. below his normal weight of 165 lb.

SUMMARY

A case of massive left hydronephrosis has been presented. This case is of interest because the patient had no urinary symptoms whatsoever, but instead presented with gastrointestinal symptoms including epigastric pain, severe diarrhea, and marked weight loss. Following nephrectomy these gastrointestinal symptoms disappeared.

UNDERLYING ORGANIC DISEASE may be indicated by recurrent episodes of fainting. The various types of syncope, vertigo, convulsive disorders, and other conditions must be differentiated in evaluating possible organic malfunction. Vasopressor or vasovagal syncope, the classic benign faint, has a variety of causes, including psychological shock and painful stimuli. Consciousness returns quickly in the recumbent position. Orthostatic syncope differs only in the precipitating factor, assumption of the upright position. Cardiac dysfunction syncope is associated with primary or reflex arrythmias, ischemic and valvular heart disease, and congenital heart anomalies. Its onset and offset are more rapid than in vasopressor syncope, and it may occur in either the upright or recumbent position. Pulmonary hypertension syncope usually is precipitated by exertion and differs from vasopressor syncope in offset symptoms of nausea, vomiting, and abdominal cramps. Pressor-postpressor syncope results from laughing, coughing, sneezing, and other strenuous activities and usually is confined to muscular men 40 years of age or more. Epileptic attacks differ from syncope in onset with the patient in any position, convulsive movements preceding unconsciousness, cyanosis, less favorable recovery from recumbent position, and bewilderment on recovery. Vertigo, unlike syncope, begins with a sense of movement, either in the patient or his surroundings.

JUERGEN E. THOMAS, M.D., and E. DOUGLAS ROOKE, M.D., Mayo Clinic and Foundation, Rochester, Minn. Proc. Mayo Clin. 38:397-410, 1963.

Distortions of Body Image Following Destruction of a Body Part

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Bismarck

EVERYONE HAS A CONCEPT of his own self-image, but surprisingly few can accurately describe it verbally. It is often easier to recognize features of another person and apply standards of meaning or significance. For example, it is said that a receding chin is a sign of weakness; a large nose indicates a minority group; protruding ears or knock knees become the butt of jokes; a type of hand posturing suggests effeminacy; persons with odd facial configurations are often typed as morons, criminals, or addicts; and a style of haircut is equated with a hoodlum. We are all quite aware that an attractive 36-24-36 walking by imparts special meaning and creates fantasies.

Schilder[1] is credited with giving us modern principles of the body image, but the knowledge of the phantom phenomena dates well back into medical antiquity. Ambrose Paré,[2] a 16th century surgeon, considered the problems of the phantom limb. Wier Mitchell,[3] after the Civil War, presented his concepts of the body schema. Many present-day psychiatrists have written of their observations of distorted body imagery in association with major psychoneurotic and psychotic disorders. Surgeons report that up to 98% of amputees experience the phantom limb phenomena—feeling of an intact body persisting after loss of a body part. Phantoms of mammary, penile, rectal, and nasal tissues have been reported, but it is generally held that internal organ phantoms do not exist.

It is the purpose of this paper to consider other facets of a distorted body image caused by accident, surgery, or severe illness rather than the phenomena of phantoms. In a psychiatric interview it is not unusual to have a patient report a traumatic event that has left him less than a whole person. He may place little import on the episode as being related to his presenting symptoms of anxiety or depression, but with a focusing of attention one finds that the patient no longer feels or has a complete awareness of "me" and is upset. His body image has been disturbed, he has a feeling of estrangement, and his body no longer seems so much "mine." He may be so concerned with a body part that he is able to bring a normally silent organ or a body function into a level of consciousness.

To measure a distorted body image, one needs to recall that the self-image or body image is built out of our impulses, behavior, past experiences, and current sensations. At birth and throughout life, the individual is the recipient of constant stimulation from the environment which structures "reality" for him through the integration system of the parietal-temporal lobes. Even the feeling of existing takes place through the medium of the body in contact with an external world. Therefore, we can use this integration system as a vehicle of self-expression and design projection tests to give us a rich source of information as to what the person thinks and feels about himself. We can also use a reverse process, depriving the individual of sensory stimulation, creating distortions of his self-image with accompanying painful stress reactions, depersonalizations, loss of time orientation, and even severe mental aberrations.

One technique of testing distorted body imagery requires only a piece of white paper, a pencil, and the instruction to "draw-a-person." Goodenough[4] in her "Draw-a-man" test for children, linked the drawing of a common object as a "man" to the intellectual growth and development of a child. Machover[5] developed the test to wider and more comprehensive usage. She noted that a drawing differs from time to time, as a sensitive index of the individual's coping reactions. She held that since a drawing is a motor response, it is less contrived, less defensive, and more direct in the expression of an idea or emotion than the symbolic word equivalent.

The accompanying drawings were made by

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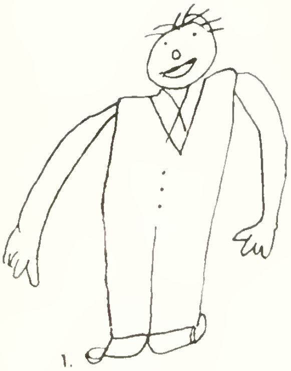

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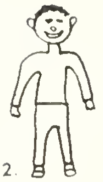

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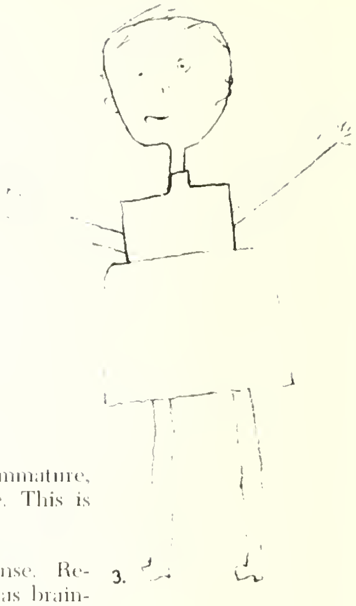

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Fig. 1. Male, 17-year-old schizophrenic, no trauma. Slide primarily illustrates immature, dependent state of boy. Note hair, eyes, tie, buttons, and general appearance. This is type of drawing one sees in normal 7- to 8-year-old boy.

Fig. 2. Male, 28-year-old schizophrenic. Tiny, crude, withdrawn, and very tense. Reportedly had been in car accident four years previously and had been treated as brain-damaged.

Fig. 3. Female, 19-year-old schizophrenic. Horrific, block design. Frightened child with practically no sexual identity. Treated for many years for allergies and asthma.

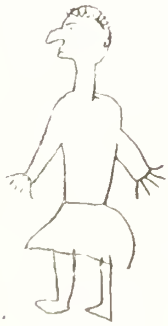

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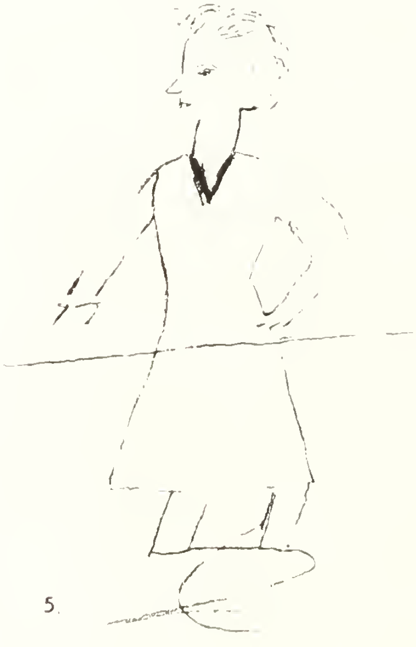
Fig. 4. Female, 36-year-old married paranoid. Complains of diarrhea. Had hemorrhoidectomy and several proctoscopies; smells somewhat dirty. Note hostility of claw hands and feet turned in to give look at backside.



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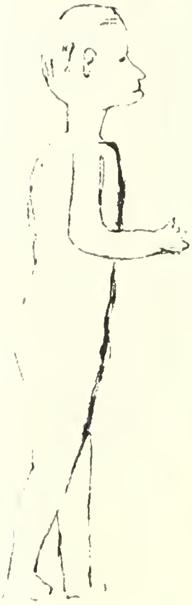

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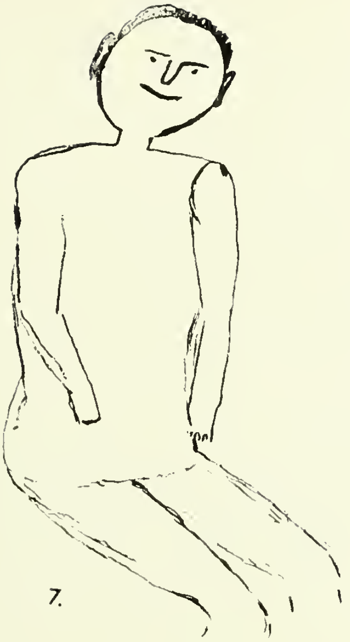
Fig. 5. Female, 38-year-old, married. Hysterectomy two years ago (fibroids); denial of sexuality. Unstable feet. Heavily marked neck V-focus may be related to her fear of breast cancer. Profile of face indicates evasiveness.

Fig. 6. Male, 42-year-old asthmatic. In car accident some ten years ago with fractured ribs; is neurotically obsessed that something is wrong with lungs. Note heavy surfacing of anterior chest wall.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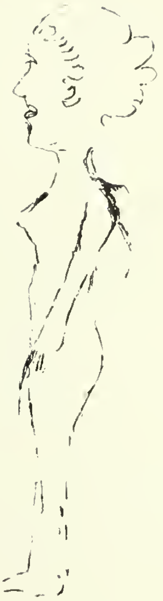
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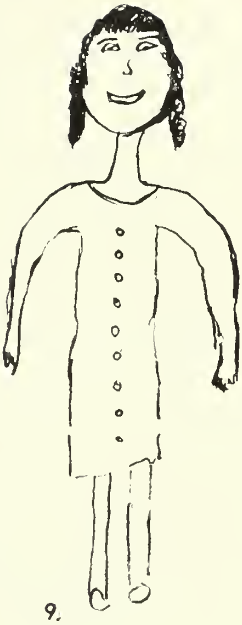
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Fig. 7. Male, age 48. Left leg amputee when 7 years old. Paranoid illness. Note feeble covering of body, identification of good leg, failure of right hand treatment, listening ears, and big shaded nose. Has great deal of sexual preoccupation

Fig. 8. Female, 46-year-old, married. Breast amputee (cancer). Big head connected to immature, distorted body with marked emphasis of breast. Note special emphasis upon genital region.

Fig. 9. Female, 31-year-old, married, and hysteroid. A charming picture of dependent, immature girl with a broken wrist, which she carefully emphasized by reinforcement

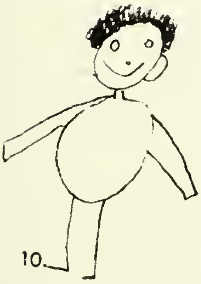
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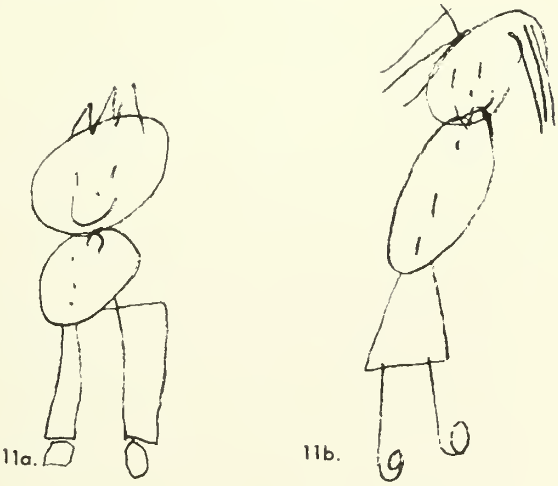
Fig. 10. Male, 15-year-old delinquent, illegitimate boy. Note depressed, empty eyes and empty body. No hands—forbidden and guilty of stealing. Had legs scalded when infant


11a.

11b.

Fig. 11 (a and b). Male, 10-year-old. Emotionally disturbed when first seen but not now. Brain-damaged child with many symptoms of mongolism, particularly of extremities; hands large and stubby with curved fifth finger, lax joint ligaments, and hypotonic muscles. Note marked immaturity—no arms, wobbly legs.

people who have had an accident, surgery, or a severe illness. These patients are reacting with anxiety, fears, hostility or fantasies of deserved mutilation, or feelings of rejection by a significant person.

Much detail of the interpretation of these drawings is omitted, but observe the following points:

1. Shading, corrections, and erasures indicate anxiety.

2. Distortions, reinforcements, and omissions express conflicts or fears concerning a distinct body part.

3. Large heads are favored by children, dependent persons, or persons with head injuries or head pain.

4. Symmetrical control and need of balance indicates an obsessive-compulsive person.

5. Stance and footing treatment is indicative of the individual's sense of security.

6. Tiny, insignificant, horrific or block design; exposed teeth; and long necks indicate a regressing process.

7. Drawings of toes or genitals are usually found only in drawings by severely disturbed patients—except artists, doctors, or persons in analysis.

8. In clothing, buttons are equated with dependency; most individuals tend to evade the problem of whether or not to clothe a drawn figure, and the majority compromise with a crude, vague, or token indication of clothing. Shoes and hats have symbolic phallic investment; other sexual symbols are pipes, cigarettes, or guns.

9. Surfacing of internal organs generally is evidence of a somatic delusion.

10. Treatment of the nose, the eyes, the hands, and hair should be noted. The nose is considered a phallic symbol; empty eyes are symptomatic of depression; eyes high on the forehead are symptomatic of dependency; the unseeing eye, of emotional immaturity (frequently carried to extremes by repeated small circles for eyes, nose, mouth, and buttons). Omission of arms and hands can never be considered an oversight; omitted hands or fingers usually indicate guilt or aggressiveness. Long arms indicate dependency; freezing of a hand at the genital region is frequently seen in drawings of individuals preoccupied with autoerotic practices; severe shaded or reinforced fingers indicate guilt; spear hands, hostility.

11. Hair relates to sexual needs and to sexual vitality; it is more primitive and childish as a sexual projection than the nose, tie, or primary sex features.

SUMMARY

Following a traumatic episode, many patients suffer from alien body sensations and distortions of the body image. In some, this results in an emotional upheaval, manifested by anxiety, hostility, depression, or fears of separation or rejection.

By a simple draw-a-person technique, clues can be elicited that will focus one's attention upon the patient's genuine feeling about himself.

It is the responsibility of the doctor to discuss with his patient the loss or injury of a body part. By open discussion of the problem, the doctor can help the patient overcome his fantasies of "deserved punishment" and to develop and maintain the self-esteem necessary to reorganize his body image.

This paper was presented at the Quain and Ramstad Clinical Conference, Bismarck, North Dakota, October 26, 1963.

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Section on PAIN and DISTRESS

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Editorial

A recent editorial in the *Journal of the American Medical Association* (January 25, 1964) entitled "Indifference to Pain" points out an excellent source of information concerning the subject of pain. It is as follows:

"The conundrum of pain is brought to the physician daily. Despite universal preoccupation with the subject, our understanding of pain mechanisms is far from complete. Inherent in the problem of pain is its subjective elusive nature, difficult to quantitate for accurate medical investigation. We respond to another person's pain by empathy and attempt to evaluate it by our own reactions and sensitivities; an individual's apparent overreaction may arouse disdain in one more stoic.

"There is a group of individuals, however, who would consider all of us sissies, for they have never experienced discomfort from pain. These people are afflicted with congenital indifference to pain, which may be an advantage or a handicap, depending upon their experience. Failure to recognize serious injury is obviously detrimental. Some of these individuals, however, learn to recognize the intensity of stimuli early in life and thereby avoid mutilation; for them the benefits of indifference to pain are obvious. In these patients, primary pain pathways are intact: they perceive painful stimuli normally but do not interpret the sensation as something unpleasant to be avoided. Although relative indifference to pain has been observed in feebleminded and hysterical persons and in those who have undergone prefrontal lobotomy, patients with congenital indifference to pain usually show no personality deviations outside the limits of normal. Presumably their indifference results from an anatomical, physiological, and/or chemical defect in cerebral integration of pathways concerned with pain appreciation. The exact nature of the abnormality remains unknown.

"In the December issue of the *Archives of Neurology,* Magee describes a postmortem examination of the brain of a patient with congenital indifference to pain. Detailed study of serial sections, particularly of those structures known or postulated to be related to pain perception or appreciation, failed to disclose any abnormality of the central nervous system. As noted by Magee, it is possible that, with conventional anatomical-pathological methods, defective or absent fiber pathways may not be demonstrable because they traverse the main mass of white matter where defect or absence of a small group of fibers would not be recognized.

"Continued clinical and pathological study of congenital indifference to pain is important, for this rare disorder provides a unique opportunity for investigation of pain mechanisms. In a clinical analysis of the disorder, Critchley has postulated a spectrum of pain experience ranging from the pain-indifferent to the pain-'sensitive' (those congenitally hypersensitive to pain), implying that the majority of the population who react in an explicable manner fall within these extremes. If we accept this postulation of organically determined variation in pain appreciation, and consider as well the psychogenically determined responses to pain, we can hardly wonder that, of all puzzles, pain is one of the most complex."

Here we have been trying to point out some of the apparent characteristics of intolerance to pain. The list is no doubt incomplete, and a chance to make real additions could perhaps be met by studies of patients with an "indifference to pain." It is suggested here that this section would invite anyone who knows of such a patient to register the name and address of his physician with the editor of this section with as much data as are available so that more might be discovered on this subject of pain. It would be interesting to know if such a patient is a redhead or blond, male or female; is his sensation mostly protopathic or epicritic; is he hard of hearing; does he see well; and is his balance good? The rarity of this condition makes it necessary to make a mass effort of the search for enough such patients to give significant data. Response by letter to the editor is invited concerning interest in this project.

Much mystery has surrounded the question of pelvic pain in women. A somewhat detailed discussion of the pain paths of both the pelvic organs and the abdominal organs is necessary in order to make sense out of some of the patient's symptoms and what is found out at the time of operation or at autopsy. Dr. Banner has made a clear picture of this confusing gynecologic subject in his fine article in this issue. He kindly did this at the editor's request. He did an excellent job and is to be thanked and congratulated.

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Pelvic Pain of Gynecologic Origin

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THE WORD "PELVIS" means a basin, and the anatomic basin, the pelvis, has within it various structures which produce undesirable sensations under various conditions. To limit the scope of this presentation, I will consider only those painful sensations that are organic in nature and that originate in the pelvis when pregnancy is not present.

It is important to note that, although an important portion of gynecologic diagnosis and treatment must of necessity encompass those disorders which have psychosomatic aspects, differentiation between functional and nonfunctional ailments must be of first concern to the diagnostician. Pelvic pain is often difficult to localize and more difficult to describe. The intensity of response has wide variability, even within the same patient under different circumstances. Since women generally attribute many of their difficulties in the lower abdominal region to the genital organs, it is obvious that any pain in this region is usually believed, by the patient, to be visceral in origin when actually it may have somatic components. Somatic pain usually results from irritation of the roots, trunks, or branches of the spinal nerves. It may be caused by any process, either toxic, metabolic, or mechanical, that disturbs or irritates spinal nerves.

When we become cognizant of all of the variables involved and the consummate proximity of the organs within the pelvis, it is not surprising that both the patient and the gynecologist find the diagnosis of pelvic pain a most difficult task.

NEUROANATOMY RELATED TO PELVIC PAIN

For a better understanding of the various organic entities which may give rise to pain, a brief review of the neuroanatomy of the female pelvis is helpful. It then will be possible to understand more clearly the pathways by which pain from organic lesions of the ovaries, uterus, oviducts, and miscellaneous structures reaches the sensorium.

All sensations of pain which arise in the pelvic viscera, except those from the lower part of the vagina and anal canal, are transmitted through sensory fibers that follow autonomic pathways to the viscera. The most prominent sympathetic pathway to the pelvic viscera is the superior hypogastric plexus (presacral nerves), the continuation of the intramesenteric or aortic plexus beyond the aortic bifurcation. A little beyond the sacral promontory, this plexus divides into right and left hypogastric nerves which course along the pelvic wall to join the pelvic splanchnic nerves (nervi erigentes) and form the inferior hypogastric or pelvic plexus. This lies in the pelvic wall lateral to the rectal ampulla and sends subsidiary plexuses—vesical, uterovaginal (Frankenhäuser's ganglion), and rectal—to the pelvic organs. The rectum has an additional sympathetic innervation through the superior rectal (hemorrhoidal) plexus. However, pain fibers from the rectum apparently follow neither of these pathways nor do those from the bladder, vagina, or cervix uteri. Instead, the fibers for pain from these parts accompany the parasympathetic fibers derived from the second, third, and fourth sacral nerves and, with the parasympathetic fibers, form the pelvic splanchnic nerves or nervi erigentes, already mentioned as contributing to the pelvic plexus. Thus the presacral nerves conduct little or no pain from the pelvis except that originating in the body of the uterus.

The nerves which supply the ovary are derived from the renal and aortic plexuses; they accompany the ovarian vessels in the tissue of the suspensory ligament of the ovary. The ovaries

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embryologically arise high in the abdomen and thus receive their nerve supply from a source higher than that of the other pelvic viscera. The nerves which supply the ovary originate mainly form the tenth thoracic nerve, while those which supply the oviducts are from the eleventh and twelfth thoracic nerves. Because of the differing anatomic routes, it is obvious that presacral neurectomy will have little or no effect on pain which originates in the oviducts or ovaries. As a rule, presacral neurectomy will relieve pain which originates only in the uterus.

Neurologists generally agree that visceral pain may be of 2 types: direct and referred. Both types probably originate from stimulation of free nerve terminations within the specific organ involved. Because the viscera probably have not a developed sense of localization such as that in the skin, various ghostlike disturbances may be set up from an affected organ. The degree of stimulus set up by an organ may also vary in intensity and be influenced by certain tangible factors such as exhaustion, anemia, and various mental states. It is therefore important that, in proper interpretation of such a stimulus, consideration be given to its severity, duration, location, and quality, and the final interpretation must be based on the general physical state of the patient during the final evaluation.

PAIN OF OVARIAN ORIGIN

The greatest surface of the ovary lies free within the abdomen. The posterior lateral portion lies in contact with the pelvic peritoneum. A short mesovarium connects the whole length of the ovary to the posterior surface of the broad ligament. In addition to the mesovarium, 2 ligaments stabilize the ovary's placement—one, laterally infundibulopelvic, sheathes the ovarian vessels and the other, at the uterine end (ovarian), is enclosed within the broad ligament. Pain of ovarian origin is caused chiefly by stretching of the capsule or disturbance of the circulation, or both. Mention has been made that the nerve supply of the ovaries is separate from that of the uterus and that the ovaries have no somatic sensory nerve supply in themselves. Benign or malignant tumors of the ovary do not ordinarily cause pain until they produce peritoneal irritation due to stretching. Symptoms produced by a twisted ovarian cyst are due to a combination of effects—either interference with the blood supply secondary to torsion of the pedicle or sudden hemorrhage that occurs within the cavity of the cyst. The hemorrhage within the cyst must occur suddenly and be extensive enough to distend the capsule rapidly. Minor stretching of the capsule of the cyst or slow distension of it rarely produces pain. It is not unusual to find a large ovarian cyst, with a tremendous volume of fluid that distends the capsule, in which no pain has been noted.

Occasionally, the pain produced by torsion of an ovarian cyst will be a diffuse type of discomfort accompanied by reflex gastrointestinal symptoms, such as nausea or vomiting, caused by vascular disturbances within the tumor. Such sensations reach the consciousness through the pathways in the sympathetic nervous system.

A more frequent cause of pain originating in the ovary is that produced by rupture of the ovarian follicle at the time of ovulation. Such pain is commonly termed "mittelschmerz." This discomfort is apparently due to rupture of the graafian follicle and occurs approximately in midcycle. The fact that this discomfort recurs regularly is probably one of the most important single diagnostic clues. This pain is generally unilateral in type, and one may elicit a history of a previous similar pain on the opposite side. The presence of minor intraperitoneal hemorrhage and subsequent peritoneal irritation would best explain the cause for this entity. Occasionally, because of the rapidity of onset, the severity of symptoms, and possibly because of continued bleeding from a small vessel, the patient will be found to have a diffuse rigidity of the lower quadrant involved, thereby simulating ectopic pregnancy, appendicitis, or small twisted ovarian cyst. Occasionally the rupture of a small endometrial implant will give a similar type of discomfort. In the usual case, the treatment is watchful expectancy. Culdoscopic examination has been of inestimable value to physicians confronted with such a differential diagnosis. Rarely is it necessary to explore the abdomen in order to determine the exact source of such a minor hemorrhage.

When laparotomy is found to be expedient, a thorough knowledge of ovarian pathology and physiology is necessary before definitive treatment may be offered. Except for ovarian involvement in chronic tubo-ovarian disease, extensive endometriosis, or malignancy, conservation of as much ovarian tissue as possible is necessary during the reproductive years. Since the gynecologic surgeon must be a skilled diagnostician, his most important aid to diagnosis is a carefully performed pelvic examination correlated with whatever laboratory and ancillary procedures are available to him. If at all possible, the pelvic examination should be conducted without anesthesia or excessive degree of analgesia. In this manner the surgeon elicits the help of the patient and more adequately localizes her presenting complaint. Additional aids in the diagnosis of ovarian pathology are culdoscopic procedures, peritoneoscopy, pneumoroentgenography, and pelvic roentgenography.

Endometrial implants on the ovary and adjacent peritoneum occasionally may cause severe pain and discomfort. Endometrial pain may result from peritoneal irritation due to spillage of the contents of the cyst or hemorrhage. Endometriosis may be completely asymptomatic. Since an endometrial implant is always surrounded by a protective cover, it does not rupture easily; when sudden hemorrhage occurs, the pain can be severe and entirely out of proportion to the amount of palpable disease found within the pelvis. A carefully taken history, noting the association of the symptoms with the menstrual period and the subsidence of such symptoms on completion of the period, will greatly assist in making such a diagnosis. Culdoscopic examination immediately before or during the menstrual flow will be of inestimable value in such circumstances.

Once such a diagnosis is confirmed, the gynecologist has available a number of modalities of therapy, depending on the severity of symptoms, the parity of the patient, and the desire for future childbearing. Such forms of therapy may vary medically from careful observation and judicious use of analgesic agents to hormonal ablation of ovarian function.Therapy may vary surgically from conservative eradication of endometrial implants to complete removal of the reproductive organs. The most careful assessment of all symptoms and physical findings is necessary before the institution of any definitive therapy.

Recently, some gynecologists have recognized the clinical entity of ovarian dysmenorrhea. The ovarian pain, which is usually noted premenstrually, may be unilateral or bilateral and almost invariably is accompanied by nausea and some vomiting. Since nerves of the ovary are derived primarily from the abdominal level with branches from the renal and aortic plexus joining the upper end of the ovarian artery, it would seem theoretically possible, in cases of ovarian dysmenorrhea, to denervate the ovary by resecting the nerves as they join the upper portions of the ovarian artery. Unfortunately, however, the nerves are too small to make this practicable and, because of the very small size of the artery, a periarterial sympathectomy at the pelvic level would also seem impractical. Therefore, it has been suggested that, when such a condition exists, both of the infundibulopelvic ligaments, with their nerves and accompanying blood vessels, be divided. To avoid postoperative elongation of the divided ligaments, the previously excised stumps are then sutured together. I have not had sufficient experience with this procedure to recommend its usefulness or its value to the gynecologic profession.

PAIN OF UTERINE ORIGIN

The afferent nerve supply from the corpus of the uterus apparently travels with the superior hypogastric plexus or presacral nerve, ascends in the lumbar sympathetic trunk, and enters the spinal cord through approximately the eleventh and twelfth thoracic nerves. Block of the first 3 lumbar sympathetic ganglia relieves pain from cancer originating in the body of the uterus. Fibers concerned with pain from the cervix, however, apparently run through the sacral nerves; it is said that presacral nerve resection makes biopsy of the fundus of the uterus painless while dilation of the cervix under these conditions will still produce pain. Apparently the greatest concentration of sensory nerves is in the region of the cervix on its posterior aspect, specifically in an area between the 2 uterosacral ligaments. Trauma, infection, or tumors in this area will result in discomfort.

Pain originating from within the uterus assumes various characteristics. It may be similar to bowel cramps when it is colicky in nature, such as that noted when powerful uterine contractions attempt to rid the cavity of a foreign body or secondarily when the uterine contractions render the myometrium ischemic through anoxia secondary to interference with the blood supply. Characteristically, patients with severe uterine disease may have, in addition to the colicky cramplike pain, a bearing-down sensation with radiation to the lower part of the back or to the legs. Third-degree uterine retroversion, especially if the uterus is fixed within the pelvis by other disease or if there is an associated congestion of the blood supply, may produce this bearing-down type of sensation. More often, however, the low sacral backache so often seen by the gynecologist is due to postural or orthopedic abnormalities. Unless the uterus is fixed in retroversion, surgical correction is rarely done now. Well-recognized orthopedic entities may appear in a patient who also has pelvic pathology and are far more likely to be the cause of the backache in the lower sacral region.

Most uterine tumors in themselves are asymptomatic. When signs and symptoms are present, they result from the physical presence of the tumor, from pressure on and adherence to surrounding structures, or from secondary changes in the uterine tumor itself.

Leiomyoma of the uterus, designated correctly "fibromyoma" and colloquially "fibroid," is the commonest uterine tumor in the female and among uterine masses is second in incidence only to pregnancy. It originates in the wall of the uterus and grows either into the uterine cavity or into the peritoneal cavity. As the tumor enlarges, the uterus is distorted and elevated in the pelvis, displacing the bladder upward. With such enlargement, the uterine surface is brought into contact with other structures, and, not infrequently, adhesions form between the myoma and the intestinal or abdominal wall. If the myoma is pedunculated, the pedicle may disappear and the tumor then becomes attached to another organ—a so-called parasitic myoma.

Subserous myomas may twist on the pedicle and cause sharp pain. Pain may be elicited also by deformities of the uterine cavity and accumulation of blood and secretion behind a point of stenosis. In approximately 1% of fibromyomas a sarcomatous change may occur. Under such conditions a rapid change in the size of the tumor may be noted. Secondary changes are commonly seen in tumors undergoing rapid development. During pregnancy, such secondary changes are conspicuous, partly because of pressure symptoms and partly because of hormonal stimulation of the muscle cells.

A very commmon condition seen by the gynecologist, and one which is localized within the uterus, is chronic cervicitis. Pain may be the presenting complaint. Many women who have had several children will complain of a painful condition within the lower part of the uterus and, on examination, will limit the site of pain to the vicinity of the uterosacral ligaments. This discomfort is probably due to retrograde spread of an infection traveling along the lymphatics in the uterosacral ligaments to the presacral plexus and thereby causing a so-called presacral neuritis. Particles of india ink injected into the substance of the cervix may be removed from the vicinity of the presacral nerves. It is therefore quite possible that infection within the cervix may cause this pelvic discomfort. Treatment of the cervicitis and endocervicitis by cauterization cures a great number of these patients in whom there is no other cause for pelvic pain and discomfort. Large cystoceles, descensus uteri, and prolapse may also cause deep abdominal discomfort and, occasionally, actual pain due to pull on the supporting structures. These conditions require either the use of a pessary for support or surgical correction of the abnormality.

While retrodisplacement of the uterus has been blamed for many of the pains that occur within the lower part of the pelvis, rarely is it the etiologic factor. Such a displaced uterus may, by its position, cause vascular congestion and stasis which secondarily involve the neural structures within the pelvis; rarely, however, does this actually occur, and more rarely still is surgical exploration necessary. If the uterus is not fixed within the pelvis because of endometriosis or other adhesions, relocation of it into normal position and insertion of a pessary may bring relief. It is only after relief has been demonstrated repeatedly by use of a pessary that surgical measures should be offered as the treatment of choice.

Carcinoma of the uterus, whether it be in the body or in the cervix, is notoriously asymptomatic until the tumor or its metastatic growth extends out into the deep pelvic connective tissue or onto the peritoneal surface. Excruciating pain may be associated with carcinoma of the internal genitalia when nerves or bones in the pelvis are involved. Pain frequently produces a vicious cycle because of the marked apprehension which, once having been initiated, tends to maintain itself. The pain produces severe anxiety and vasoconstriction, thereby lowering the pain threshold and leading to total incapacity and physical deterioration. The lower the malignancy originates within the uterine body, the more likely the patient is to complain of pain. The diagnosis of carcinoma of the corpus uteri is made on the basis of a history of postmenopausal bleeding or menometrorrhagia occurring during the menopausal years. Frequently there is an accompanying leukorrhea—a foul, odorous discharge. The diagnosis is confirmed by microscopic detection of malignant cells.

Although it is acknowledged that pain is usually a late symptom of malignant disease within the uterine body or cervix, it is our obligation as physicians to attempt to relieve pain and to make the patient's life as tolerable as possible to the best of our ability. This must be done in spite of the incurable nature of the patient's condition. Various forms of therapy, including medicinal, chemical, gynecologic, and neurosurgical, are indicated depending on the general condition of the patient, the severity of the symptoms, and the extent of the disease process.

A frequent cause of lower abdominal pain is a postabortive process which involves the uterus primarily. In such a condition one finds a large, boggy, tender uterus, and it is possible to elicit severe pain on cervical manipulation. One may find, in addition, nodular thickening of the adnexa. Occasionally, the patient consults the gynecologist because of deep thrombophlebitis or phlebothrombosis. If the patient is seen some weeks after the initial acute process, brawny induration involving the entire pelvis is noted. The diagnosis is made on the basis of the palpable findings plus a history of instrumentation followed by chills, fever, and lower abdominal pain. Not infrequently, there is a purulent foul-smelling discharge.

Inflamed cervical strictures may cause severe, colicky, lower abdominal pain. Such lesions dam back the normal uterine secretion and produce stagnation and subsequent pyometria. Sometimes such conditions occur after extensive cautery of the endocervix. A similar process may accompany cervical malignancy.

Extreme degrees of procidentia may produce discomfort and pain in the lower part of the pelvis. Often, the severity of such symptoms is not at all in proportion to the degree of the uterine descent. The pain is caused chiefly by the enteroptosis, which follows descent of the pelvic viscera, and the resulting changes in the intra-abdominal contents. Difficulties with the bladder and rectum, especially the former, also are common under such conditions because of the distorted position of these organs. Voiding and defecation may become extremely difficult without manual reduction of the prolapsed masses. The degree of pain is determined somewhat by the amount of vascular engorgement and hyperemia coincident with endometrial hypertrophy as well as by the cervical disease.

Dysmenorrhea or painful menstruation is usually spoken of as a disease although actually it is a symptom or manifestation of some underlying organic or functional abnormality. The secondary or acquired type is due to pelvic lesions and may not be dependent entirely on uterine disease. Since the condition is frequently incapacitating and occasionally is a forewarning of serious pelvic disease, solution of the problem is a vital and pressing matter. All efforts should be made to investigate the genital system, from the hymenal ring to the tubes and ovaries, to detect abnormalities. Since various theories have been offered to explain the development of secondary dysmenorrhea, one cannot take for granted that any one theory in itself is correct. Essentially, any condition which results in chronic pelvic congestion may cause dysmenorrhea, and in many instances it is not necessary to look further for the causes than to chronic fatigue, constipation, or lack of exercise. Presacral sympathectomy with complete excision of the superior hypogastric plexus is an especially effective form of therapy but it should be offered only in those cases in which no pathological changes can be found outside the uterus and in which all usual medical treatments have proved to be of no avail.

Membranous dysmenorrhea is usually characterized by very severe pain and the passage of shreds in the menstrual blood, which at times amount to a complete cast of the uterine body and cervical canal. Such a cast represents the submucous surface of the uterus, and microscopically it may show no variation from normal endometrium or it may exhibit changes suggestive of decidual formation. Various theories have been offered for such a phenomenon, and the etiologic basis is not clear. Whatever the origin, the process represents an extreme degree of the physiological shedding of the endometrium which normally occurs with each menstrual cycle.

Endometriosis, either of the internal or the external variety, has pain as its most common single symptom; only approximately 25% of patients with the disease are free from this symptom. Since the lesions found are so varied in their location and nature, the location of the pain is extremely variable. In the most common type of endometriosis, the presenting symptom is lower abdominal pain that occurs either unilaterally or bilaterally. Such discomfort is characteristically aggravated premenstrually and leaves a residual pelvic soreness. This condition always should be considered as a possibility when a history is obtained that progressively severe dysmenorrhea has developed after the age of 20 years. Depending on the location of the endometriosis, the following symptoms may also appear: menorrhagia or metrorrhagia, sterility, and, in certain late cases, varying degrees of intestinal obstruction, painful defecation, or hematuria. The presence of shotlike indurations in the region of the uterosacral ligaments or of nodular beady thickenings that are palpable along the posterior surface of the uterus, associated with an adherent retroplaced uterus, probably constitutes the most suggestive single palpable finding of endometriosis. When such a finding is associated with the symptoms previously described, the diagnosis is unquestionable.

Following the failure of palliative measures, in many cases the patient must be offered surgical treatment in an attempt to alleviate the painful symptoms of endometriosis. Since the disease is notoriously diffuse in location, the final decision regarding the extent of the operation frequently must be made at the time of operation. Each case must be judged individually, taking into consideration the extent of the lesions, the patient's age, and her feelings concerning childbearing. Conservative treatment is the treatment of choice in the younger patient.

PAIN ORIGINATING IN THE OVIDUCTS

Pain originating from disease of the fallopian tubes may manifest itself in various ways. The fallopian tubes represent the upper end of paramesonephric (müllerian) ducts, the lower ends of which fuse together to form the uterus. At one end, therefore, the tube opens into the uterus, being bedded in the lateral uterine wall; at the other end, it has a flared or funnel-like opening into the pelvic portion of the peritoneal cavity. The tube occupies the upper border of the broad ligament. Since the fallopian tubes are approximately 10 cm. long when straightened out and since they are contingent to the uterus, broad ligament, ovary, and pelvic peritoneum, various pain patterns are noted as involvement with disease takes place.

Salpingitis, a bacterial inflammation of the fallopian tubes, originates usually by extension upward from the lower part of the genital tract but may also occur by extension through the lymphatic channels or bloodstream or by continuity. Regardless of the etiologic factors, the tube responds by hyperemia, distortion, and congestion. In certain types of infection, particularly those of the gonococcal variety, the mucosal surfaces are agglutinated and the cilia are destroyed. Frequently, pain is initiated at the time of a normal menstrual period. The pain is often bilateral and progressive in type. There is marked general lower abdominal tenderness when the peritoneum is involved, and the initial symptoms become exaggerated when purulent discharge escapes from the fimbriated ends of the tube. If the disease remains untreated, the symptoms may exist for a period of weeks and then become quiescent, reappearing with subsequent exacerbations. Not infrequently, new attacks follow coitus or a vigorous bimanual examination. If such a disease process is allowed to continue, adhesions often form and the process extends to and involves the ovary and adjacent structures. Under the latter circumstance, the patient may complain of bilateral pelvic pain of a dull, dragging type.

Conservative management under ideal surroundings will undoubtedly result in many symptomatic cures, but complications generally require surgical intervention. Under proper antibiotic management, acute salpingitis will remain localized in the majority of patients, symptoms will slowly disappear, and no further treatment will be necessary. If the patient is seen in the later stages of the disease and the pelvic discomfort is debilitating, surgical measures should be recommended. Since the majority of tubal infections occur in young patients, conservative treatment should be given whenever possible.

Genital tuberculosis, which now is seen rarely, originates in the tubes in approximately 90% of patients. The condition is practically always the local manifestation of a general disease, although the primary focus may no longer be active. It may occur at any age but is most common in women in the childbearing period and is a frequent cause of tubal infection in virgins and in young persons. Although tubal tuberculosis may exist in an inactive and quiescent form, the first sign of involvement may be localized pain referred to the pelvis. Sterility is inevitable, and sometimes an endometrial biopsy performed during an investigation of infertility reveals the tuberculous focus. The prognosis is dependent on the degree of generalized involvement and on the stage of the local lesion. Medical management should perhaps be given priority in the treatment of such patients, but, occasionally, surgical treatment must be offered for complete eradication.

Severe pain is occasionally encountered in patients who have periovarian cysts. The outer end of the wolffian ducts may be dilated into cysts of Morgagni which lie near the fimbriated end of the tube. Although the cysts seldom give rise to clinical symptoms, on rare occasions they twist on their pedicle and cause severe acute pain that necessitates laparotomy. Since such cysts are usually of small caliber, this diagnosis is rarely made preoperatively.

Since the specific character of a primary tumor of the oviduct is usually not demonstrable before operation and since such a tumor is symptomatically indistinguishable from solid growths of the ovary or metastatic growths associated with carcinoma of the body of the uterus, the diagnosis of such a tumor is not often made although the patient may present pain as a symptom of the growth. Even with the abdomen open, the site of origin of such a growth may be difficult to ascertain.

PAIN OF OTHER ORIGIN

Thrombophlebitis of the deep pelvic veins is not uncommon. Such a condition is of special importance because of the potential danger to the patient from sepsis, embolism, or possible death. The chief precipitating causes of pelvic thrombophlebitis are trauma and pelvic infection, often coincident with obstetric delivery or difficult pelvic operations. Contributing factors are: anemia, hypotension, varicosities, obesity, and conditions which lead to venous stasis. The presenting symptom may be pain, which may be located deep within the pelvis.

Anticoagulants are now widely used in the prophylaxis as well as treatment of such conditions. Since the individual hematologic response to treatment with such drugs varies greatly, the clinician must be aware of the patient's prothrombin values. Excessive prolongation of the prothrombin time resulting from such therapy may be combated by the intravenous administration of vitamin K. Transfusions of whole blood also may be necessary. Since thrombophlebitic phenomena accompany pelvic operations more often than they accompany any other type of operation, it is important for the gynecologist to have a thorough understanding of the pathology involved. Correct surgical technique and treatment with antibiotics and anticoagulants act as safeguards against a serious and sometimes fatal outcome.

Pains from adhesions following pelvic surgery or infections vary in severity and location. One must remember that usually more adhesions result from operations designed to relieve adhesions; sometimes the new adhesions are more troublesome than the first. Only when pain is of such severity as to be seriously incapacitating or when adhesive bands produce features of obstruction of the bowel should surgical treatment be contemplated. It is well to remember that the mere presence of adhesions, occasionally associated with lower abdominal discomfort, is not enough to provide the indication for surgical exploration. Occasionally, periovarian adhesions may so encase the ovary as to prevent freeing of the ovum into the peritoneal cavity. When such adhesions are seen by culdoscopic examination in the course of a sterility workup, the release of adhesions about the tubes or fimbriated end—salpingolysis—may be indicated.

CONCLUSION

Pelvic pain is a common, and oftentimes extremely elusive, gynecologic symptom engendered by abnormal physiology of or pathological lesions in the reproductive system. The multiplicity of etiologic factors frequently makes it difficult to isolate and prove a single cause. Every effort must be made by the gynecologist to alleviate the discomfort quickly and accurately. Technical skill as a surgeon is no longer the sole index of the capability of the gynecologic surgeon. Of greater importance are his diagnostic abilities and his judgment in pre- and postoperative care. Too often, a patient presenting pain as a symptom is subjected to an unnecessary and sometimes major procedure without a thorough elucidation of the basic physiology and pathology of the part involved. The value of a technically perfect operation may be completely nullified by an improper indication for such an operation fostered by inadequate preoperative investigation.

I am indebted to Dr. W. Henry Hollinshead for his review of the anatomy discussed in this paper.

TREATMENT OF pregnant patients with brain tumors depends on symptoms, parity, gestation, and type and location of tumors. Symptoms often are first noted during pregnancy and may reverse partially or completely after delivery, even without operation. Conservative management and careful observation sometimes are feasible until the fetus reaches viable size; neurological surgery should be avoided if possible. In multiparous patients, early induction of labor by amniotomy may be indicated, followed by vaginal delivery aided by outlet forceps. Cesarean section often is preferable in primigravid patients. Interruption of early pregnancy should be considered in patients with glioblastoma multiforme and in those with uncontrollable seizures, particularly if the tumor cannot be completely removed. Tumor surgery may be required during pregnancy if intracranial pressure or focal neurological symptoms increase suddenly. After delivery, operation can be performed as early as three days postpartum. The observations are based on a study of 16 pregnant women with brain tumors.

ROGER D. KEMPERS, M.D., and ROSS H. MILLER, M.D., Mayo Clinic and Foundation, Rochester, Minn. Amer. J. Obstet. Gynec. 87:858-864, 1963.

Book Reviews on Pain . . .

SMALL ANIMAL ANESTHESIA, by WILLIAM V. LUMB, 420 pp., ill., Lea & Febiger, Philadelphia, 1963. $11.50

This book very well illustrates that a section on pain and distress need not be limited to the problems of man. The animals in man's environment cannot be ignored and many times require a helping hand. Here one can find the means necessary for use in the case of an emergency or deliberate treatment of a sick or wounded animal. This review calls attention to the availability of a book that is often needed but is seldom on hand. For those interested in anesthesia, it will become apparent that in operative procedures on animals regional anesthesia is often the method of choice as many times it should be in operations on humans. There are times when anyone would be interested in the formula for euthanasia solution which is included in this book.

This book is well-indexed, printed on good paper, easily read, and, for the anesthesiologist or person who is interested in the production of anesthesia in man or animal, it deserves a permanent place on his bookshelf.

JOHN S. LUNDY, M.D.
Chicago

TECHNIQUES AND PROCEDURES OF ANESTHESIA, edited by John Adriani, 3rd ed., 646 pp., Charles C Thomas, Springfield, Ill., 1964. $10.50

In his introduction the author states "the author has found that an outline of procedures based upon the fundamentals of anesthesia simplifies and expedites the process of teaching and learning for both instructor and pupil." This outline of procedures and techniques has been employed by the author as a guide for beginners in anesthesia. He also states "the author lays no claim to originality of any of the techniques outlined." Further he says "the author wishes to stress the fact that there is no such thing as a routine in the administration of anesthetics. An attempt has been made in this outline, not only to enumerate the technical details in anesthesia, but the associated reasons for executing them in the manner described."

The contents of this book are: "General Considerations," such as types of anesthesia, available drugs, records, operative risks, and so on; "Inhalation Anesthesia," types and methods; "Complications of Anesthesia"; "Basal Narcosis and Analgesia by Intravascular Injection"; "Rectal Anesthesia"; "Regional Anesthesia"; "Specialized Procedures," such as pediatric anesthesia, thoracic anesthesia, hypotension and hypothermia, and the postanesthetic recovery room; "Resuscitation"; "Inhalation Therapy"; and an appendix.

The appendix gives normal values in urinalysis, kidney function, blood chemistries, cerebrospinal fluid, liver function tests, hematology, cardiac hemodynamics, and conversion factors for the metric system. This is the most valuable part of the book.

The author has struck upon a very satisfactory way of not only presenting in outline form the choice of anesthetic agents and techniques to be used but of following the scheme of the outline somewhat throughout the book, making it very easy for the reader to locate the information that he wishes to cover. The book is printed on good paper, easily read, and is well indexed.

This is a splendid book, put together by a highly competent author, and, although it is pointed at students, it is just as good a book for the older practicing anesthesiologists or anesthetists.

JOHN S. LUNDY, M.D.
Chicago

YEAR BOOK OF ANESTHESIA, by STUART C. CULLEN, 1963-1964 series, 392 pp., ill., The Year Book Medical Publishers, Inc., Chicago, 1963. $8.50

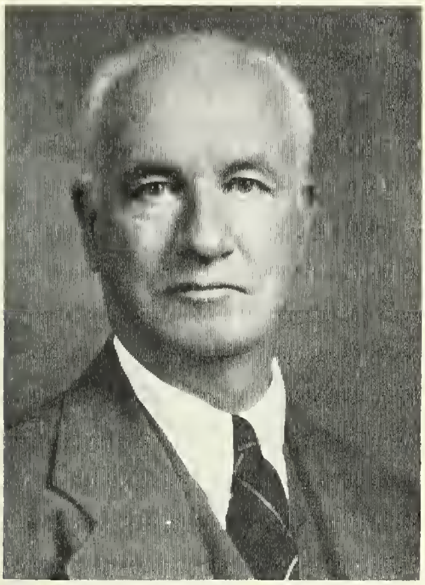
The publishers say in the foreword "The scope of the international literature pertaining to Anesthesia has broadened considerably in the past few years." Because of this fact, they have deemed it wise and appropriate to broaden the coverage of this literature by devoting an entire volume to the subject. Dr. Cullen, who has edited a section on anesthesia in the Year Book of General Surgery for thirteen years, has been retained as editor. In the editor's preface Dr. Cullen has stated the purpose of the book and its organization very specifically as follows: "This volume represents the first edition of a year book devoted entirely to matters anesthetic. In the past, abstracts related to anesthesia have been a part of Year Book of General Surgery.

"In the firm belief that the rational and safe approach to management of anesthetic and related problems is based on the thorough understanding of the fundamental sciences of physiology, pharmacology, anatomy, physics, biochemistry, etc., the articles for this new Year Book of Anesthesia were selected according to this philosophy. As a result, the material is from journals not restricted to articles with obvious direct relation to anesthesia. In accord with the basic philosophy represented by the nature of the article selected, the material is organized not according to the various individual agents or techniques, or specific operative procedures, but into broader and more fundamental categories such as respiration, circulation, etc."

Other subjects the book contains cover such areas as premedication, inhalation agents and techniques, relaxants, infiltration, regional, spinal and epidural anesthesia, pain release, barbiturates, obstetrical anesthesia, pediatric anesthesia, special clinical problems, renal function, hypothermia, postanesthetic complications, inhalation therapy, and miscellaneous. The editor has made a most careful and critical selection of the material that he is presenting. His experience permits him to make an excellent judgment of what is good enough to be included, and he is critical enough to exclude material that does not rate space in a book of this size.

Possession of this book should save the busy practitioner a great deal of time that would otherwise be necessary for reading it in order to encompass so much good information. The book is indexed, printed on good paper, and is easily read.

JOHN S. LUNDY, M.D.
Chicago



Donald Church Balfour, M.D.

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Dr. Donald C. Balfour, director emeritus of the Mayo Foundation for Medical Education and Research, emeritus professor of surgery in the Mayo Foundation, Graduate School, University of Minnesota, and a member of the staff of the Mayo Clinic from 1909 to 1947, died at Saint Mary's Hospital, Rochester, Minnesota, at 6:40 P.M. on July 25, 1963. Cause of death was pulmonary edema caused by myocardial infarction.

Dr. Balfour was born in Toronto on August 22, 1882. His father, Walter Balfour, was born in Scotland, and his mother, Alice Church Balfour, was born in Canada. Dr. Balfour's parents settled in Hamilton, Ontario, in the early part of the century, and he obtained his preliminary education at the Hamilton Collegiate Institute. Entering upon the study of medicine in the University of Toronto, he was graduated in 1906 with the degree of bachelor of medicine.

While he was an intern in the Hamilton City Hospital, he came under the influence of Dr. Ingersoll Olmsted, a distinguished surgeon and teacher of his day who had traveled widely in Great Britain and Europe and had visited the Mayo Clinic in Rochester, Minnesota. It was largely through this association that Dr. Balfour decided to become a surgeon. He learned through a medical school friend, the late Dr. M. S. Henderson who had been appointed an assistant to the doctors Mayo in the early part of 1907, that the two brothers were looking for a young man as an assistant in pathology. He consulted Dr. Olmsted, who urged him to take the first train for Rochester without waiting to make application. He did so. In the meantime, Dr. Olmsted sent such an enthusiastic telegram that Dr. Balfour found an appointment as assistant in pathology waiting for him when he arrived in Rochester on July 7, 1907.

The chief of the section of pathology was Dr. Louis B. Wilson, with Dr. W. C. MacCarty as associate. The laboratories of surgical pathology were such an integral part of the operating room suite that Dr. Balfour had an unusual opportunity to observe the coordination between surgery and surgical pathology.

One of the great contributions to surgery was in the making at that time, namely, the use of fresh frozen sections of tissue removed at operation, enabling an experienced pathologist to give the surgeon an immediate answer to the nature of the lesion with which he was dealing. It was "living pathology." There was also a challenging aspect to it; if one could not collect the tissue, freeze it, cut the section, stain it, and have it under the microscope in less than one minute, the technique was considered clumsy. Every specimen was demonstrated to the operating surgeon, to the visiting surgeons, and to the relatives of the patient; recorded; indexed; and filed for future review.

It became obvious that coordinated effort would be the trend of medicine of the future. At the Mayo Clinic Dr. Balfour watched world-

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famous surgeons carry on their daily work, and he heard them discuss with visitors the problems involved, which then were many and controversial. In such an atmosphere his decision to become a surgeon became fixed.

During the next year as a clinical assistant Dr. Balfour was fortunate in being associated with Dr. Christopher Graham, who had acquired extraordinary diagnostic ability from his vast experience, unusual perception in understanding of the patient, meticulous manner of taking histories, and insistence on complete examination of the patient. He also saw the beginning of specialization in the institution, and he realized it could best be developed through a broad basic training and experience in general medicine.

He perceived that Dr. William J. Mayo and Dr. Charles H. Mayo made every effort to lessen the emotional, economic, and physical burdens of the patient; no patient was ever refused treatment, and all patients were accorded the same treatment, regardless of economic or social position. This was a philosophy of the conduct of medicine which made a deep impression on Dr. Balfour. Throughout the years he kept before the minds of the younger physicians in the Mayo Clinic and Mayo Foundation the principle that preservation of this physician-patient relationship was the highest attainment to which a physician could aspire; such an attainment would continue to constitute a real contribution to medicine, regardless of the form which medical practice might take.

He became a junior surgeon in 1909, with rotation of services with Drs. William J. and Charles H. Mayo, E. Starr Judd, and Emil H. Beckman. This marked a pattern which is generally followed today in the training of graduate students in surgery in the Mayo Foundation at Rochester. He gradually assumed increasing responsibilities, and in 1912 he became head of a section in general surgery in the Mayo Clinic.

In that period general surgery was a much more comprehensive field than it is today. The early surgical writings of Dr. Balfour include reports of unusual cases, tonsillectomies in children, surgery of the thyroid gland, varicose veins, hernias, and diseases of the gallbladder and ducts, the spleen, and the gastrointestinal tract. He devised various instruments and equipment, such as a device for holding bottles of solution, an abdominal retractor, an operating table, and an operating-room mirror to facilitate and enhance the safety of operating-room procedures. Gradually, his interest became focused on diseases of the stomach and duodenum, and it is probably in this particular field of surgery that he is best known. His papers indicate that his primary objective was "not only to make the operation safe for the patient but to make the patient safe for operation," and to this end he made significant contributions affecting the preoperative preparation of the patient and in methods for avoiding postoperative complications. He showed that operations on the stomach and duodenum could be done with a degree of safety that had a profound influence on the development of the field. Insofar as his descriptions are concerned, there is evidence of an open mind toward the many procedures which were then being advocated for dealing with gastric and duodenal lesions, emphasizing the importance of applying these to conditions found at each operation. In following this practice he was able to present to the profession the relative merits of these various procedures, and from this evolved the general principles which are largely in favor today.

The fact that his contributions dealt with abdominal surgery more or less forced the direction of his surgical activities toward gastric surgery, and his experience is recorded in the major publication, *The Stomach and Duodenum*, published in 1935 with his colleague, Dr. G. B. Eusterman. He contributed more than 225 writings of his own to the medical and surgical literature, and he was a member of the editorial board of *Surgery* and also of *Surgery, Gynecology and Obstetrics*.

On the basis of his own training in the Mayo Clinic from 1907 to 1912, Dr. Balfour became convinced that the first obligation of the Mayo Clinic, with its large practice, its extensive facilities for reseach, and its program of education, was to make these distinctive educational assets available to those who were qualified to undertake graduate training in the several fields of medicine. The desirability of formalizing this training resulted in his devotion to the purposes of the Mayo Foundation and its relationship to the Graduate School of the University of Minnesota. His intimate association with Dr. Louis B. Wilson, who was chief of pathology when Dr. Balfour arrived in 1907 and who was the first director of the Mayo Foundation, offered unique opportunity for furthering these interests. In 1915 his interest in this endeavor was heightened by membership on the Graduate Committee, the body responsible for the graduate training program in medicine in the University of Minnesota Medical School and the Mayo Foundation. Dr. Balfour gave more and more time to the work of the Mayo Foundation, finding particular satisfaction in aiding fellows in the solution of their professional and personal problems. From 1915 to 1923 he was associate professor of surgery in the Mayo Foundation, and from 1923 to 1947 he was professor of surgery. He was chief of the Division of Surgery of the Mayo Foundation from 1923 to 1935 and became director of the Mayo Foundation upon Dr. Wilson's retirement in 1937. He served in that capacity until his retirement in 1947, when he was succeeded by Dr. Victor Johnson. Dr. Balfour made possible the establishment of the annual Donald Church Balfour Lecture at the University of Toronto in 1927. In 1935 he established the Balfour Educational Fund, which is used to defray the expenses of visits by fellows of the Mayo Foundation to national medical and scientific meetings and for grants in aid to special research or travel.

From 1929 to 1947 he was a member of the Board of Governors of the Mayo Clinic, and he was chairman of the board from 1933 to 1936.

During the period of his tenure as a director of the Mayo Foundation a multitude of problems brought about by World War II and its aftermath evolved. Paramount was the maintenance of the training program on a high level and caring for a greatly increased number of patients, all with a greatly depleted staff and limited fellowship personnel. More than 1,500 medical officers of the armed services in groups of from 75 to 100 were assigned to the Mayo Foundation for varying periods of training in certain special fields for which the number of available trained physicians was insufficient. In recognition of his services to the Army and Navy, he received the President's Certificate of Merit in 1948, and citations by the secretaries of War and of the Navy were awarded to Dr. Balfour, the staff of the Mayo Clinic, and faculty of the Mayo Foundation. Fellows of the Mayo Foundation who were also veterans of World War II presented him with a scroll. He had been an honorary consultant to the Bureau of Medicine and Surgery of the U.S. Navy and an honorary consultant to the Army Medical Library.

Extensive research in aviation medicine was carried on for several years at the request of the government, and from this work developed the G suit and the first human centrifuge to be built in the United States. Dr. Balfour was a member of the Committee on Surgery of the National Research Council.

It was during Dr. Balfour's directorship of the Mayo Foundation that Dr. and Mrs. W. J. Mayo gave their home at 701 Fourth Street Southwest to the Mayo Foundation with their expressed hope that it would serve "as a meeting place where men of medicine may exchange ideas for the good of mankind." It is in the Mayo Foundation House that many distinguished persons and medical societies from this country and abroad have met the staff and conducted their meetings, where members of the staff meet for discussions, and where fellows meet for seminars. A large room which was constructed in the form of a guild hall has been named "Balfour Hall" by the staff of the Mayo Clinic and the faculty of the Mayo Foundation. In this hall is a stained-glass window depicting the history of medicine from the beginning of recorded medical history. Dr. Balfour was chairman of the group which designed this window, installed in 1941, and a scroll was presented to him when the hall was completed. On December 2, 1947, the Association of Fellows presented to the Mayo Foundation a portrait of Dr. Balfour which is now in Balfour Hall, Mayo Foundation House.

Maintenance of the policy established by Dr. Wilson of the closest possible affiliation with the University of Minnesota and continuance and advancement of the program of the Mayo Foundation on a graduate-school level were recognized by the University of Minnesota; the Builder of the Name Award was conferred on Dr. Balfour in 1950.

Retirement did not materially change Dr. Balfour's interests which had been developing over the years of his active career. He had a profound interest in and affection for people, and his love of music was well known. He was an accomplished pianist and organist. Although he found greater relaxation in improvisation, he used to accompany the Rochester Symphony Orchestra, civic ensembles, and choral groups. The Balfour home was open house for musical organizations, recitals, and informal gatherings of music lovers and distinguished artists. This home was the residence in which Miss Hattie M. Damon was married to Dr. William J. Mayo on November 20, 1884, and Dr. and Mrs. Balfour occupied it from the time of their marriage in 1910 until 1960. In October 1960, they presented the house to the Mayo Association, which in turn made it available to the Young Men's Christian Association. That organization has named the residence Balfour House.

Dr. Balfour was a patron of all musical groups in Rochester, and also was a member of the board of directors of the Rochester Art Center. For many years he was a member of the board of the Minneapolis Orchestral Association, and in 1959 he was made an honorary member of the board.

Dr. and Mrs. Balfour were enthusiastic about travel by any means, and until recently were ardent motorists, averaging about 25,000 miles per year. The Indian country of the Southwest held a special attraction for them, and through their many trips they came to know intimately the history of the several Indian tribes in that area. Dr. Balfour summarized this history in his presidential address before Sigma Xi, "The Indians of the Southwest." The Balfour home holds many art objects and mementos of past trips. In his travels, both in this country and abroad, Dr. Balfour customarily visited hospitals, clinics, and medical schools, and he called on former fellows of the Mayo Foundation who might be located in the area.

Dr. Balfour always maintained a keen interest in sports, since he was active in his school years in hockey and basketball, and he played semiprofessional baseball for two summers. In his later years he took up golf and hunting.

In the world of books, biography, adventure stories, historical novels, and travel books held first place.

Operation of a dairy farm, including a herd of Holstein cattle which ranked high in the area, was another interest. Dr. Balfour sold the farm in 1961.

In addition to being a member of local, state, and national medical societies, Dr. Balfour was a member of the executive committee of the Advisory Board of Medical Specialties; honorary president of the Alumni Association of the Mayo Foundation; founder–charter member of the American Board of Surgery, Inc.; president, regent, member of the advisory council, and member of the committee on graduate training in surgery of the American College of Surgeons; chairman of the section of surgery of the American Medical Association; vice-president of the American Surgical Association; president of the Interstate Post Graduate Medical Assembly of North America, and a charter member of the Mayo Foundation chapter of the Society of the Sigma Xi. For many years he was a counceilor of the Olmsted County Historical Society.

A significant honor was that of the Distinguished Service Award of the American Medical Association which Dr. Balfour received at the June meeting in 1955. In 1956 he was awarded the Friedenwald Medal of the American Gastroenterological Association. He was awarded the cross of Knight Commander of the Royal Order of the Crown of Italy, and in 1946 the insigne of commander in the Order of Merit of the Republic of Chile was conferred upon him. Among the honorary fellowships and awards which he held in this country and abroad were honorary fellowships of the Royal Colleges of Surgeons of England, of Edinburgh, of Australasia, and of Canada. McMaster, Northwestern, and Western Ontario universities conferred upon him the honorary degree of doctor of science, and the University of Toronto and Carleton and St. Olaf colleges awarded him the honorary degree of doctor of laws. He held honorary fellowships in the Association of Surgeons of Great Britain and Ireland, the Royal Society of Medicine, the American Gastroenterological Association, and the National Academy of Medicine of France. Northwestern University presented him with its Centennial Award in 1951, and in 1957 the Medical Alumni Association of the University of Toronto made him an honorary life member of that organization.

In 1960 the Donald Church Balfour Visiting Professorship was established by the Medical Graduate Committee of the Mayo Foundation to honor Dr. Balfour. By this means leading authorities in medicine and surgery are invited to become visiting professors at the Mayo Foundation for a few days, and they receive their appointments from the Board of Regents of the University of Minnesota.

He was also an honorary member of medical and surgical societies of Argentina, Belgium, Chile, France, Greece, Hungary, and Italy and honorary member of Ambroise Paré Travel Club, the Hamilton Academy of Medicine, the Los Angeles Surgical Society, the Southeastern Surgical Congress, the Association of Military Surgeons of the U.S., the International Society of Surgery, and the Pan American Medical Association.

Dr. Balfour gave the Mary Scott Newbold lecture in 1922 at the College of Physicians, Philadelphia, the John B. Murphy Oration in Surgery in 1934, the Franklin H. Martin Memorial lecture in 1952 at the American College of Surgeons, the Lister Oration at the Canadian Medical Association in 1951, and was visiting lecturer at the University of Edinburgh in 1950.

He was a fellow of the American Association for the Advancement of Science, one of the founders of the World Medical Association, and a charter member of the World Health Organization and of the Central Surgical Association. He was a member of the Western Surgical Association, the Southern Surgical Association, the Society of Clinical Surgery, the Interurban Surgical Association, the Minnesota Academy of Science, the Minnesota State Medical Association, the Southern Minnesota Medical Association, and the Zumbro Valley Medical Society.

He was a member of the board of trustees of Carleton College and of the National Fund for Medical Education, a member of the Minnesota governing committee of the Gorgas Memorial Institute of Tropical and Preventive Medicine, a member of the board of directors of the Franklin H. Martin Foundation, and an elector of the Hall of Fame of New York University.

He belonged to the Campus Club of the University of Minnesota, the Minneapolis Club, the University Club of Chicago and Rochester, Minnesota, the Horse Shoe Club of London, England, and the Nu Sigma Nu professional medical fraternity.

Dr. Balfour was married to Miss Carrie L. Mayo, daughter of Dr. and Mrs. William J. Mayo, on May 28, 1910. Mrs. Balfour died on December 13, 1960. Dr. and Mrs. Balfour had four children: Mary Damon (Mrs. H. F. Helmholz, Jr.); Dr. William M. Balfour, of Lawrence, Kansas; Dr. Donald C. Balfour, Jr., of San Marino, California; and Walter M. Balfour, of Yuba City, California.

THE CHANCES of long-term survival for patients with asymptomatic cancer of the breast, rectum, colon, skin, and cervix are improved by early detection through presently available means and prompt treatment. Other diagnostic methods than presently used are needed for the detection of potentially curable cancer of the pancreas, gallbladder, and stomach, however. Under a cancer-detection program inaugurated in 1948, 10,771 patients were examined and 375 malignant growths were discovered. Among 25 women with breast cancer, the five-year survival rate was 88%, compared with the commonly reported rate of 50%. Fifteen of 20 patients with rectal carcinoma survived five years; the five-year rate for patients with primary rectal cancer is currently calculated to be about 25%. But for 16 patients with carcinoma of the stomach, excluding 1 who died of recurrence three months after expiration of the five-year follow-up period, the survival rate was 12.5%, the same as that generally reported for patients with symptomatic stomach cancer.

VICTOR A. GILBERTSEN, M.D., and OWEN H. WANGENSTEEN, M.D., University of Minnesota, Minneapolis. Surg. Gynec. Obstet. 116:413-416, 1963.

LATERAL CERVICAL masses probably are remodeled continuously by traumatic injury, weightbearing, and exertion and become more asymmetrical with age. The changes are not related consistently to narrowing of intervertebral disk spaces; degeneration of intervertebral disks will change the configuration but may not affect articular masses. Roentgenograms were made of cervical spines in cadavers of 28 elderly persons and in 13 women under 21 years of age. Measurement of inclination of articular facets in the 30° caudad anteroposterior view showed considerably more asymmetry in the cadavers than in the young women.

HERBERT A. SCHOENING, M.D., Kenny Rehabilitation Institute and University of Minnesota, Minneapolis. Arch. phys. Med. 44:303-307, 1963.

Book Reviews . . .

Strategies of Psychotherapy

by JAY HALEY, *204 pp., Grune & Stratton, Inc., New York City, 1963. $7.75*

Strategies of Psychotherapy is a provocative book, designed for controversy. In the foreword Dr. Don Jackson writes that Jay Haley is not a psychiatrist, psychoanalyst, or a clinical psychologist and that it will be difficult for many psychotherapists to overcome their bias against the unlabeled and to read this work to learn something new.

The author, a communication analyst, properly defines his subject matter, his word usage, and how he sees the psychotherapist and the patient maneuver each other in the process of treatment. With the use of an abundance of good examples, he follows the therapist inducing the patient to change and explains why the patient changes. Mr. Haley generally works within the framework of Gregory Bateson's interpersonal theory with a liberal dash of adlerian concept of power struggles. He usually holds well to his subject of paradoxes—an interpersonal communication system by which a directive is qualified by another directive in a conflicting way, through which the therapist gains and holds control over his patient. He carefully dissects the communication system in hypnosis, directive therapy, nondirective therapy, and psychoanalysis.

His chapters on schizophrenics, on marriage therapy, and on family conflicts and their resolution continue the theme of imposing therapeutic paradoxes so the patient can learn alternate ways of behaving while being forced to abandon past practices which induce distress. He concludes that the "cause" of change resides in what all psychotherapeutic methods have in common—the therapeutic paradoxes which appear in the relationship between the psychotherapist and the patient.

At this point, for some reason, he introduces Zen Buddhism and then feels it necessary to offer additional summaries of the paradoxes common in all forms of psychotherapy. He does this with subtitles as "The Blamed and Unblamed," "Domination by the Undominating," "Dead Serious Play," and the "Benevolent Ordeal." Haley concludes his book with an epilogue on the "Art of Psychoanalysis"—the Potter Study on one-upmanship. This is but flat frosting on an otherwise good cake.

Strategies of Psychotherapy is a good work and can well stand on its own merits.

RUSSELL O. SAXVIK, M.D.
Bismarck

Nursing Care of the Long-Term Patient

by JEANNE E. BLUMBERG *and* ELEANOR E. DRUMMOND, *134 pp., Springer Publishing Co., Inc., New York City, 1963. $2.75*

This pamphlet, without wasting words, gives a clear and concise picture of the major aspects of nursing in the care of the chronically ill. In view of the fact that there are many differences between this type of care and general nursing care of the acutely ill, this publication is valuable even to the experienced nurse.

Emphasis is placed on the importance of first-hand observation by the nurse. There can be no quarrel with the authors' premise that a nurse cannot observe the subtle changes in a patient from a chair at the nurse's station. The observations must be made from the patient's bedside, and the book contains much important data which shows what the observer should look for.

The illustrations are excellent. The authors seem to have a good understanding of a realistic approach to the challenge of caring for the chronically ill.

The reviewer is in agreement with the thoughts of the authors and would recommend this book to all nurses irrespective of experience. I further feel that it would be of value to physicians, so that they may more fully understand the contribution of nursing care in the treatment of the long-term patient.

MARGARET CONNOR, R.N.
Minneapolis

Man and His Future: A Ciba Foundation Volume

edited by GORDON WOLSTENHOLME, *410 pp., ill., Little, Brown & Co., Boston, 1963. $6*

Man and His Future—the unexpurgated report of a recent Ciba Conference—is refreshing in its candor, intellectually stimulating in its provocative look into the future, and fascinating in its glimpses into the spontaneous thoughts of some of the world's foremost biologists as they verbally duel—sometimes devastatingly—with one another. The conference included 6 Nobel laureates—Medawar, Lederberg, Lipmann, Crick, Szent-Györgyi, and Muller—and such other giants as Haldane, J. Huxley, Bronowski, Chisholm, Hoagland, Pincus, and Pirie.

The tone of the conference is set by Huxley's thought-provoking lead-off paper which focuses on the third sector of evolution (cosmic and biological being the first 2)—namely, "human or psychosocial" (or cultural) evolution—the potentialities of which we are just beginning to discover. A few provocative assertions will indicate the scope of Huxley's remarks. "In psychosocial evolution the struggle for existence has been replaced by the striving for fulfillment." "The current phase of human organization is ending in a tangle of unresolved problems and self-defeating activities." "The world has become a unit *de facto:* sooner rather than later, it must become a unit *de jure*. . . . The population explosion is making us ask the fundamental question—so fundamental that it is usually not asked at all—what are people for?"

Most of the papers and the extensive discussions are full of food for thought. The aim of the conference was to stimulate thinking about problems that will face humanity in the next decade, the next century, and even the next 10,000 years. Two sentences from the preface highlight the need. "The world was unprepared socially, politically, and ethically for the advent of nuclear power. Now, biological research is in a ferment, creating and promising methods of interference with 'natural processes' which could destroy or could transform nearly every aspect of human life which we value."

The brilliant advances of medical science which have made "death control" a reality have created other problems, such as a change in the sex ratio, a change in the distribution of age groups in society, and the population

(Continued on page 16A)

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(Continued from page 182)

explosion. Thus Pincus' paper on "Control of Reproduction in Mammals" stimulated much discussion.

The phenomenal successes of transplantation or "biological engineering" caused Lederberg to ask "what is the moral, legal, or psychiatric identity of an artificial chimera?" With the recent apparent success, using a chimpanzee kidney in man, we must extend Lederberg's question to ask also about species identity.

Szent-Györgyi puts his finger on an imperative direction for biological research. " 'Organization' means that if nature puts two things together in a meaningful way, something new is generated. . . . If this is true then the opposite is also true, and when I take two things apart I have thrown away something, something which has been the very essence of that system, of that level of organization."

But the conference was also concerned with "organization" at higher levels, and in Haldane's long, long look (10,000 years) he opts for his hoped-for fifth alternative—number one is "man has no future," number three that "a nuclear war, with such damage, will lead to a highly authoritarian world state"—namely, that "a nuclear war will not occur, but some kind of world organization will gradually develop, probably after a general disarmament."

As our generation grew up through World War I and II and the Great Depression it was fashionable to indict the generation ahead of us for having botched things. Now we hear similarly justified indictments because we have failed to anticipate such problems as explosive nuclei and populations. *Man and His Future* goads us into wrestling with some of these problems, before mankind is engulfed, and should be *must* reading for all educated citizens who prefer to turn over to the next generation a more orderly civilization than was handed to us.

CYRUS BARNUM, PH.D.
Minneapolis

Practical Electroencephalography for the Anesthesiologist

by VERNE L. BRECHNER, RICHARD D. WALTER, *and* JOHN B. DILLON, *107 pp., ill., Charles C Thomas, Springfield, Ill., 1962. $6.50*

The use of electroencephalography as an aid to anesthesiology may be understood in two fundamental ways. It may serve as an indicator of depth of anesthesia or it may be employed as an indicator of brain function while the organism is under an anesthetic agent. Although to some these two expressions may seem to convey the same thought in different forms, there is a fundamental difference between the two. If the first were the case, the electrical activity of the brain would be a function of depth of anesthesia exclusively. If the second supposition were true, on the other hand, electroencephalography would reflect the electrical responses of the brain to many agents acting concomitantly with anesthesia. The first is the fundamental proposition, behind the idea of servo control of anesthesia. The second is the basic idea developed in the monograph by Brechner, Walter, and Dillon. The conveyance of this concept is important enough in this age of automation to make the book a valuable contribution to both anesthesiology and electroencephalography, for it alerts the uninitiated against the attraction of "gadgetry" and points to the fundamental significance of the electroencephalogram and to the importance of its sound interpretation in all the many variations produced by changes in blood supply, blood saturation by various gases, and so on.

Two shortcomings of the book should be pointed out. The illustrations are, in many instances, not quite adequate due to small lettering and sometimes excessive compression of data as well as to the presence of background timelines from the original tracings which give the figures an unclean appearance. The bibliography, although probably adequate for the scope of the book, could have been more complete. This would undoubtedly have increased the value of the monograph to readers who want to obtain more complete information on the subject.

In general, in spite of these and other minor faults, this monograph fulfills the purposes stated by the authors in the preface:

1) "To provide the general practicing anesthesiologist a firm background in the clinical application of electroencephalography as it relates to his specialty. Thus, he may view pertinent current literature with understanding and intelligent critical analysis.
2) To provide the anesthesiologist wishing to employ electroencephalography a source of information to aid him in acquiring the skill and judgment necessary to monitor the electroencephalogram intelligently."

The book is, therefore, recommended for anesthesiologists interested in keeping pace with this fascinating aspect of their specialty and also for investigators in other branches who have to deal frequently or incidentally with anesthetics in their study of the brain.

FERNANDO TORRES, M.D.
Minneapolis

Medical Mycology

by CHESTER W. EMMONS, CHAPMAN H. BINFORD, *and* JOHN P. UTZ, *380 pp., ill., Lea & Febiger, Philadelphia, 1963. $14*

This new and first edition reveals current and accepted principles of medical mycology in an up-to-the-minute presentation of a subject which has been rife with divergences of opinion. The science of mycology precedes microbiology by many years, yet the medical aspects of this discipline have attracted the increased attention of the clinician only within the past quarter of a century. Much of this has been due to the paucity of reliable texts in the field.

The authors review briefly the role of fungi in nature's economy with an excellent chapter designating various characteristics of fungi; what is fairly novel, a small section on current pronunciations of mycologic nomenclature is included also. There is a brief chapter dealing with histopathological identification of fungi found in human mycoses. The clinician interested in the immunology and mycology of human fungus diseases and also the therapy of these diseases, might feel that these subjects could have been covered more intensively than the 4 pages (2 each chapter) devoted to these subjects, although most diseases discussed have a short paragraph or 2 regarding immunology.

Those diseases which might be confronted by the average physician sometime during his practice are outlined in a manner similar to that given below. The authors begin with a definition of the disease to be covered (including synonyms), the etiology of the subject, historical data, clinical types of the infection, differential diagnosis,

(Continued on page 18A)

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BOOK REVIEWS

(Continued from page 16A)

prognosis and therapy, immunology, pathology, epidemiology, laboratory diagnosis, and mycology. Citations of literature which follow each chapter are not lengthy but include the best pertinent references readily available for further perusal. Throughout the volume are found gross and microscopic illustrations of exceptional quality, and it is quite evident that the authors have attempted to secure photomicrographs which can be readily transferred to the printed page without loss of too much detail. Three appendixes are included covering culture media, diagnostic materials and methods, and histopathologic procedures and special stains for fungi. This last is worth much in itself. Two color prints are included in appendix III illustrating the different types of fungus stains. Again the reproducibility on the printed page is unsurpassed. Finally, a short glossary puts the finishing touches on a well-organized piece of work.

Perhaps the only criticism, if it can be judged as such, is that the book should have been available years ago. The physician, particularly the dermatologist, should find this reference a valuable addition to his office library.

RICHARD M. MARWIN, PH.D.
Grand Forks

Birth Defects

edited by MORRIS FISHBEIN, *335 pp., ill., J. B. Lippincott Company, Philadelphia, 1963. $5*

This book provides an excellent overview of the many problems involved in a comprehensive understanding of birth defects. Its 30 chapters reflect a wide selection of topics and an excellent choice of authors who are well known in their respective fields.

The range of defects is broadly defined and includes malformations, metabolic errors, and abnormalities in hemoglobin and other blood components. Attention is given both to causes (such as viruses, chromosomal aberrations, and noxious chemicals) and to treatment (such as for hydrocephalus, clubfoot, erythroblastosis, or fibrocystic disease). The relevance of basic biology is shown by discussions of genetics, desoxyribonucleic acid metabolism, and the structure of the child himself, his parents, and society in general.

The book was commissioned by the National Foundation to provide explanations of birth defects for the relatives and friends of affected children. A number of the chapters would indeed be suitable for this purpose. The discussion of cardiac abnormalities by Helen Taussig is particularly well adapted in language and style for use with parents. The book as a whole, however, would seem to have limited appeal to parents, since their concern may seldom extend beyond the particular type of defect occurring in their own child. Some of the chapters require a fair background in biology for comprehension.

It is my impression that the volume will have more value for use by a physician as he talks with parents. Here in a single volume one may find drawings of stages in the development of the human embryo, pedigrees illustrating different modes of inheritance, diagrams of the fetal and postnatal circulation, photographs of chromosomal patterns in certain syndromes, and diagrams of the main biochemical blocks in phenylketonuria.

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(Continued on page 20A)

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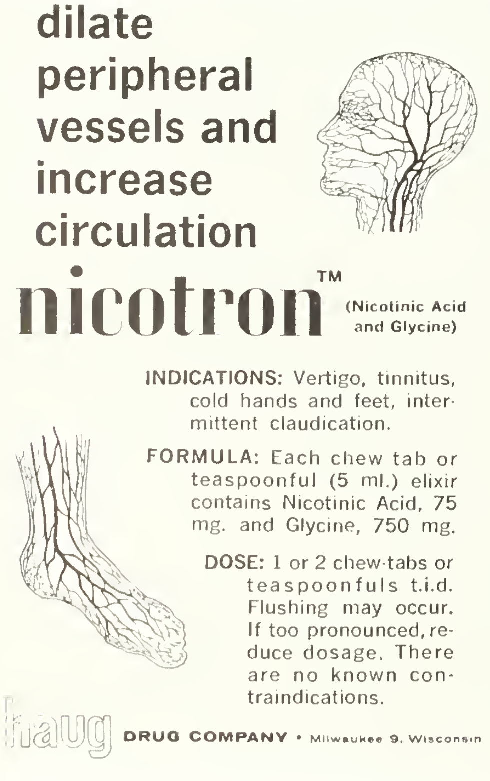

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(Continued from page 18A)

coverage. Chapters of particular interest would include those on cell structure as revealed by electron microscopy, the role of the placenta, and chemical causes of birth defects. The review of chromosomal aberrations and the chapters on pedigrees and genetic counseling should also be helpful.

The book also can be recommended to nurses, social workers, and other persons responsible for the care of children with defects. It has much potential value for both high school and college biology teachers, since no other book offers a similar selection of topics.

The chapters are short, averaging about 10 pages each. The book has an index, and about half of the chapters have references.

V. ELVING ANDERSON, PH.D.
Minneapolis

The Fundamental Ideas of Medicine: A Brief History of Medicine

by J. F. A. MC MANUS, *115 pp., ill., Charles C Thomas, Springfield, Ill., 1963. $4.75*

This short monograph concerns an historical review of the fundamental ideas of medicine. Briefly these include, according to the author, the facts that (1) abnormal conditions can be recognized in the living body, (2) the living organisms are orderly, understandable, and analyzable, (3) the living organisms have features of structure and function which can be examined at the individual cellular and subcellular levels, (4) disease is alteration of the body involving both structure and function, (5) disease exists as patterns of bodily process or modification of body structure and function, (6) certain diseases have certain etiologies and all diseases are caused, and (7) treatment can benefit the individual patient.

The author is discussing a vital subject in modern thinking—the history of ideas. Unfortunately, this work is only a primer and never gets far beyond listing numerous contributors to the various aspects of the above ideas. Although the compendium of contributors to the fundamental ideas in medicine is quite complete, some of the interpretations of these contributions are open to question. It is doubtful that Socrates should be listed as "one of the first antiscientists" or that scholastic system of Aquinas "sparked the Renaissance." Further, it is curious in a book about fundamental ideas in medicine to see Claude Bernard's greatest contribution listed as his idea of the constancy of the internal environment while Bernard's basic principle that scientific determinism held for living as well as inorganic materials set forth in his classic *Introduction* is ignored.

A more complete evaluation of these ideas in terms of history, science, and philosophy must be made before any conclusion can be reached regarding the place of any particular fundamental idea in history of medicine.

The summary provides an interesting insight into modern medical practice and education. As both student and teacher of "Flexner's fossilized formulae" the reviewer wholeheartedly agrees that there is a desperate need for a change in present-day medical education. It is possible that the next fundamental idea in medicine will concern restoring of motion to the ankylosed joints of the modern medical curriculum.

E. G. OLMSTEAD, M.D.
Grand Forks

News Briefs . . .

North Dakota

DR. THOMAS E. PEDERSON is chief of staff at Trinity Hospital, Jamestown, after four years on the executive committee. He replaces Dr. John M. Van der Linde. Other officers are Dr. John N. Elsworth, vice-chief of staff, and Dr. John W. Jansonius, secretary.

* * * *

DR. WILLARD A. WRIGHT of Williston has been named North Dakota chairman of the United States Committee, Inc., World Medical Association. A member of the committee for ten years, Dr. Wright has practiced medicine in North Dakota for thirty-eight years. He received his medical degree from the University of Manitoba, Winnipeg.

* * * *

SERVING in triple capacities are newly-elected officers at Valley City. The doctors are officers of medical staffs at Mercy and Sheyenne Memorial hospitals and the Sheyenne Valley Medical Society. Dr. Clayton E. Jensen is president, Dr. Clifford J. Klein, vice-president, and Dr. John W. Goven, secretary-treasurer.

* * * *

DR. JOS GONZALEZ, an orthopedic surgeon, has joined the Craven-Hagen Clinic staff in Williston. He has been a staff surgeon at Kentucky Baptist Hospital, Louisville, and spent a year in orthopedic surgery at the Royal Alexandra Hospital, Edmonton, Alberta. Dr. Gonzalez received his M.D. degree from the National University of Mexico, Mexico City, interned at Oak Park Hospital, Ill., and took residency at Harlem Hospital, New York City. The 32-year-old surgeon also took additional orthopedic training in Queens Hospital Center, Jamaica, N.Y.

* * * *

DR. ELLIS OSTER, an Ellendale physician for ten years, will begin a radiology residency at the University of Utah in Salt Lake City next summer. His practice will be assumed by Dr. Eugene F. Bolliger, an associate of Dr. Oster since 1958. Credited with being a guiding influence in the growth of the Dickey County Memorial Hospital in Ellendale, Dr. Oster also established the Ellendale Clinic building and was Dickey County coroner for several years. He received his B.A. and B.S. degrees from the University of North Dakota in 1944 and his M.D. degree from the University of Illinois College of Medicine, Chicago, in 1946.

* * * *

DR. PAUL F. KLOSTERMAN of the Capital City Clinic in Bismarck recently was certified by the American Board of Internal Medicine. He has been with the clinic since November 1, 1961.

* * * *

DR. KENNETH J. JOHNSON of the Quain and Ramstad Clinic in Bismarck has been elected a fellow of the American College of Allergists. A University of Minnesota Medical School graduate, Dr. Johnson joined Quain and Ramstad in 1951.

* * * *

DR. ALCIDE F. DU MAIS has resigned from the medical staff of the Mandan Community Hospital where he has been secretary-treasurer. His future plans were not announced at the time of resignation.

(Continued on page 22A)

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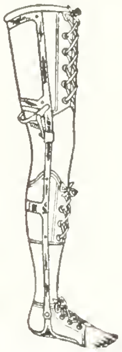

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NEWS BRIEFS

(Continued from page 21A)

DR. MICHAEL L. LECKIE has joined Dr. Kenneth M. Wakefield in practice in Cooperstown. A native of England, Dr. Leckie had been practicing in Carnduff, Saskatchewan.

° ° ° °

DR. CHANG S. JUN has joined Drs. Clayton O. McPhail and W. Loren Fennell in the Crosby Clinic. He was born in North Korea, was graduated from Severance Union Medical College in Seoul, Korea, and served five years as a South Korean Army surgeon. He interned at Southern Baptist Hospital, New Orleans, with surgery residencies in Nashville, Tenn., and New York City, plus a two-year general practice residency in Fort Oglethorpe, Ga.

Minnesota

DR. ROBERT B. SAWTELL, a Worthington physician specializing in pediatrics, has accepted a Mayo Clinic fellowship in physical medicine and rehabilitation. He will leave Worthington at mid-year, after eleven years of practice there. Dr. Sawtell has been active in civic affairs, was city health officer for seven years, and served on the school health board and the county nursing board.

° ° ° °

DR. HOWARD M. WIKOFF of Crookston is the new president of the Red River Valley Medical Society, succeeding Dr. Arnold M. Berg of Roseau. At the society's annual meeting in January, Dr. Glenn W. Brown of Halstad was elected vice-president and Dr. Russell O. Sather of Crookston, secretary. Dr. Lester N. Dale of Red Lake Falls was reappointed delegate to the Minnesota State Medical Association House of Delegates, with Dr. Clifford J. Stadem of Twin Valley as alternate.

° ° ° °

DR. ANTHONY H. FIELD, Farmington general practitioner for twenty-three years, has opened a practice in Burnsville. He had been associated with the Farmington clinic and remains on the staff of Sanford Hospital, Farmington.

° ° ° °

MEMBERS of the Minneapolis Surgical Society met in the Mayo Building, Rochester, in January. Topics covered included analysis of the declining open-heart surgery mortality, recent findings in surgical treatment of lung cancer, and surgical treatment of ulcerative colitis. The surgeons also toured Rochester Methodist and St. Mary's hospitals during their meeting.

° ° ° °

DR. EDWARD H. LAMBERT has been appointed to the Neurology B Study Section of the National Institutes of Health, Public Health Service, U.S. Department of Health, Education and Welfare. Dr. Lambert is head of the Laboratory of Electromyography of the Mayo Clinic, Rochester, and professor of physiology in the Mayo Foundation of the University of Minnesota graduate school.

° ° ° °

DR. EDWARD S. JUDD, JR., a Mayo Clinic surgeon, was installed as president of the Central Surgical Association at the annual meeting in Rochester.

° ° ° °

DR. CHARLES A. FIELD, an obstetrician, has joined the Olmsted Medical Group in Rochester following five months' service in African and Indian mission hospitals. He received his M.D. degree from the State University of

Iowa, Iowa City, completed five years as a general practitioner in Cresco, Iowa, and was a fellow in obstetrics and gynecology at the Mayo Foundation from January 1960 to July 1963. Dr. Field is the thirteenth member of the Olmsted Medical Group.

* * * *

DR. ROBERT L. ZEMKE, now in general practice residency at Stanislaus County Hospital, Modesto, Calif., has been appointed college physician at St. Olaf College, Northfield, effective August 1. Dr. Zemke, a 1957 graduate of St. Olaf, received his M.D. degree from the University of Minnesota Medical School in 1961.

* * * *

DR. ROBERT R. RYNEARSON has been appointed assistant medical director at Rochester State Hospital, according to Dr. Francis A. Tyce, medical director. Dr. Rynearson, a psychiatrist and University of Minnesota Medical School graduate, continues as head of the Day Hospital, a position held since December 1963. His father, Dr. Edward H. Rynearson, is a senior consultant at the Mayo Clinic and Foundation, Rochester.

* * * *

FOUR MINNEAPOLIS-ST. PAUL DOCTORS were to join the medical staff of the S.S. Hope during April and May in Guayaquil, Ecuador. Scheduled for temporary duty on the teaching hospital ship were St. Paul Drs. Frank W. Quattlebaum, a general surgeon on his second tour, Charles A. Roach, ophthalmologist, and James J. Swendson, obstetrician, and Dr. Richard E. Reiley of Minneapolis. Dr. Quattlebaum's wife, Dr. Jane E. Hodgson, recently completed a two-month tour on the S.S. Hope.

* * * *

DR. LEO J. GEHRIG, a native of Duluth and first medical director of the Peace Corps, has been promoted from deputy chief to chief of the U.S. Public Health Service Bureau of Medical Services, Washington, D. C. He is a 1945 graduate of the University of Minnesota Medical School.

* * * *

THOMAS E. KEYS, Mayo Clinic librarian, is president of the newly organized History of Medicine Society of the Mayo Foundation. Dr. Norbert O. Hanson, Mayo Foundation instructor in medicine, is vice-president and Ruth Mann, Mayo Clinic library cataloger, secretary-treasurer.

South Dakota

DR. FREDERICK H. MUCKINHOUPT has joined the Hot Springs Veterans Administration Center as a staff physician, professional services. From 1942 to 1946, he was in the Army Air Force. Dr. Muckinhoupt has been in private practice in his hometown of Meadville, Pa.

* * * *

DR. HAROLD J. MAC DONOUGH has established practice as a radiologist in Hot Springs. After receiving his M.D. degree from the University of Amsterdam, The Netherlands, he interned at Uniontown, Pa., and took residency at Wilmington, Del.

* * * *

DR. WALTER M. GYSIN, a German-born neuropsychiatrist, has joined the Bartron Clinic staff in Watertown, moving from Norfolk, Neb. Dr. Gysin and his wife came to the United States in the late 1930s. He became an instructor in neurology and psychiatry at the University of Nebras-

(Continued on page 24A)

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NEWS BRIEFS

(Continued from page 23A)

ka in 1943 and was appointed associate professor in 1953. Since 1956, Dr. Gysin also was clinical director at Norfolk State Hospital.

Deaths . . .

DR. ALBERT COMPTON BRODERS, Mayo Clinic staff member from 1912 to 1950, died March 27 at the Scott and White Clinic, Temple, Texas. Since 1950 he had been senior consultant in surgical pathology and pathologic anatomy at the clinic where his two sons, Drs. Albert C. Broders, Jr., and Charles W. Broders, are staff members. A 1910 graduate of the Medical College of Virginia, Dr. Broders became best known for his continuing interest in the pathology of cancer, including development of a cancer malignancy grading system bearing his name. He received many honors during his research career, including honorary D.Sc. degrees from the Medical College of Virginia in 1929 and Washington and Lee University in 1949. Dr. Broders, among his many professional affiliations, was a fellow of the American College of Physicians and College of American Pathologists and a member of the American Medical Association and the American Association of Pathologists and Bacteriologists.

° ° ° °

DR. CHARLES F. MORGAN, 52, a University of Minnesota professor of anatomy, died March 10. Before coming to Minnesota in 1959, Dr. Morgan had been on the staff of Georgetown University School of Medicine, Washington, D. C., for seventeen years.

° ° ° °

DR. JOHN A. MOGA died February 28 at 67 years of age. He was born in St. Paul and practiced there for 33 years. Dr. Moga was a graduate of the University of Minnesota Medical School.

° ° ° °

DR. MERRILL W. PANGBURN, who retired last November after thirty-three years of practice in Miller, S.D., died March 12 in Houston, Texas. Born in 1896 at Faulkton, S.D., he earned his M.D. degree from Rush Medical School, Chicago, in 1924. Dr. Pangburn was a past president of the Huron District Medical Society, and a member of the Sioux Valley, South Dakota, and American Medical Associations. He also was a Miller city councilman for eighteen years and had a lifetime interest in ranching and Boy Scout work.

° ° ° °

DR. HERMAN KLEINMAN, 57, chronic disease chief of the Minnesota State Health Department, died February 29. At the time of his death, Dr. Kleinman also was president of the Minnesota Tuberculosis and Health Association.

° ° ° °

DR. OTTO J. SEIFERT, 76, died February 19 in Santa Monica, Calif., while on vacation. A New Ulm, Minn., physician and surgeon for more than fifty years, he was head of the Seifert Clinic, was an active Catholic layman, and was prominent in civic affairs. He received his M.D. degree from the University of Minnesota Medical School in 1912 and attained the rank of major in the Army during two years' service in World War I. Dr. Seifert began practicing in New Ulm in 1919. He was a fellow of the American College of Surgeons and member of the American Medical Association, North American Radiological Society, and Brown County and Minnesota State Medical Societies.

COMING *in* *July*

Articles and features to be found in the next issue of THE JOURNAL-LANCET

A major type of cardiovascular emergency is that which presents with chest pain. In a lead paper entitled "Cardiovascular Chest Pain as an Emergency Situation," Kenneth M. Campione, M.D., associate in medicine, Northwestern University Medical School, Chicago, discusses the most frequent etiologic events underlying such pain in the light of recent experimental and clinical concepts. He points out that inadequate coronary blood flow may result in myocardial ischemia and create an emergency situation through the production of three clinical pain syndromes:

Angina pectoris—characterized by paroxysmal attacks of a distinctive pain or oppression usually situated retrosternally with rather constant relationship to effort,

Intermediate coronary—chest pain intermediate in duration and intensity between angina pectoris and acute myocardial infarction, and

Acute myocardial infarction—intractable chest pain often associated with fall in arterial blood pressure, fever, and prostration.

Other papers scheduled to appear are:

- **Pitfalls in the X-Ray Diagnosis of Carcinoma of the Esophagus and Pharynx,** by Sidney K. Shapiro, M.D., University of Minnesota Medical School, Minneapolis.

- **Cerebral Astrocytoma Metastatic to Cervical Lymph Nodes,** by James H. Coffey, M.D., Fargo Clinic, Fargo.

- **Observations in Patients with Prosthetic Valve Replacement,** by Jorge I. Martinez-Lopez, M D., Louisiana State University School of Medicine, New Orleans.

- **The Role of Muscle Relaxtion in Surgical Analgesia,** by Hugh S. Mathewson, M.D., St. Luke's Hospital, Kansas City, Missouri.

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The Journal-Lancet

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Current Techniques in the Surgical Approach to Aortic and Mitral Valvular Disease

C. WALTON LILLEHEI, M.D.,
RAYMOND C. BONNABEAU, JR., M.D.,
and MORRIS J. LEVY, M.D.
Minneapolis

DURING THE PAST DECADE important strides have been made in the surgical treatment of acquired mitral and aortic valvular disease. Initially, patients who underwent corrective surgery were treated only by closed or blind procedures. The next significant advance was the advent of open reconstructive operations,[1,2] utilizing the heart-lung machine. As time passed and follow-up data were collected, it became apparent that the results were not as good as anticipated in all patients. Some patients most certainly would have benefited more by total removal of their diseased valve and complete replacement by an adequate prosthetic valve.

With the development of the Starr-Edwards ball-valve prosthesis and the demonstration of its effectiveness,[3,4] we have utilized total replacement of the diseased mitral and aortic valves in patients with acquired disease as the surgical treatment of choice when, at the time of surgery, it was felt that reconstruction would yield a poorer result.

In our earlier use of the Starr-Edwards ball-valve prosthesis for total replacement of the mitral valve, we experienced a higher mortality than expected. Most of the deaths observed in this group were due to a clinical picture compatible with a low cardiac output. An analysis of these patient deaths indicated to us that the mortality could be reduced if the mitral valve–chordae tendineae–papillary muscle continuity were kept intact.[5,6]

This report is an evaluation of a series of our patients who have had mitral or aortic valve removal and replacement with a Starr-Edwards ball-valve prosthesis over the past two years.

All patients were admitted to and operated upon at University of Minnesota Hospitals by

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C. WALTON LILLEHEI, RAYMOND C. BONNABEAU, JR., *and* MORRIS J. LEVY *are with the Department of Surgery, University of Minnesota Medical School.*

TABLE 1
TOTAL AORTIC VALVE REPLACEMENT, 41 PATIENTS WITH ACQUIRED DISEASE
(December 1, 1961–December 1, 1963)

Age at time of operation	*Males*	*Females*	*Total*
21–30	5	2	7
31–40	8	2	10
41–50	10	3	13
51–60	4	1	5
61–70	1	2	3
Total	30	11	41

the authors between December 1, 1961, and December 1, 1963. All patients had acquired valvular disease, although, in some older individuals, particularly those with calcified aortic valve disease and without a definite history of rheumatic fever or infection, there may have been a congenital bicuspid valve originally with subsequent calcification secondary to the turbulence that occurs around a bicuspid valve. There were 74 patients in this series; 33 had total replacement of the mitral valve, and 41 had total replacement of the aortic valve.

PATIENTS

Aortic valvular disease. Forty-one patients were operated upon and treated by surgical replacement of the aortic valve. Of these 41, 11 were female and 30 were male, the majority falling in the fourth and fifth decades (table 1).

It should be emphasized that these patients undergoing total valve replacement represented the most advanced cases, in terms of valvular destruction, since many other patients with lesser degrees of valve disorganization had reconstructive procedures during this same period. The final decision was always made at the operating table after the valves had been visualized.

The etiology of the diseased aortic valve seemed to be due primarily to rheumatic heart disease following rheumatic fever at an earlier date. Twenty patients, of which 16 were male, had a definite history of rheumatic fever. Those remaining had either no history or questionable history of rheumatic fever. One female had aortic insufficiency of luetic origin, while 3 patients had bacterial endocarditis associated with ventricular septal defect in 1 and coarctation of the aorta in 2. Two patients, 1 male and 1 female, had developed aortic valvular disease following a bout of acute bacterial endocarditis. Neither patient had a congenital defect of the aortic valve. There were 2 with congenital aortic stenosis and 1 with congenital subaortic stenosis.

The majority of our patients with acquired aortic valvular disease were either symptomatic or presented themselves in frank failure. However, several patients were admitted exhibiting no signs or symptoms of failure, and 1 patient had developed failure twenty-five years prior to admission. As a result, most patients had been on digitalis and diuretic therapy some time before admission.

All of our patients had left ventricular hypertrophy or strain demonstrated by electrocardiogram or vectorcardiogram, while 1 of the patients with aortic valvular disease presented with atrial fibrillation (she had concurrent mitral stenosis); there was a history of atrial fibrillation in another.

The majority of patients, 33, (table 2) fell in the class III to IV grouping according to the American Heart Classification, while only 8 fell in the I and II classification.

In this series, 9 of the 41 patients with primary aortic disease were suffering from some degree of mitral insufficiency, while 2 others had mitral stenosis.

Mitral valvular disease. Thirty-three patients were operated upon for total replacement of the mitral valve. Of these 19 were male and 14 were female. The majority of these fell within the fifth and sixth decades (table 3).

As with aortic disease, the origin of the mitral valvular disease seemed to be predominantly rheumatic fever with secondary valvular damage. Twenty-two patients gave a definite history of diagnosed rheumatic fever. Of these, 11 were male. One of the female patients had a subse-

TABLE 2
AMERICAN HEART CLASSIFICATION OF PATIENTS WITH ACQUIRED AORTIC VALVULAR DISEASE ON ADMISSION FOR SURGERY
(Operated upon December 1, 1961–December 1, 1963)

	I	*II*	*III*	*III-IV*	*IV*	*Total*
Males	2	1	15	2	7	30
Females	0	2	5	0	4	11
Total	2	6	20	2	11	41

TABLE 3
TOTAL MITRAL VALVE REPLACEMENT,
33 PATIENTS WITH ACQUIRED DISEASE
(December 1, 1961–December 1, 1963)

Age at time of operation	*Males*	*Females*	*Total*
11–20	3	0	3
21–30	0	3	3
31–40	1	4	5
41–50	7	2	9
51–60	6	4	10
61–70	2	1	3
Total	19	14	33

quent bout of subacute bacterial endocarditis prior to surgery. Six males and 3 females had mitral disease of undetermined etiology. One male patient had the origin of his disease traced to subacute bacterial endocarditis of unknown etiology. At the time of his initial sickness, he had developed a positive brucellosis test, while 1 developed mitral insufficiency on a basis of fibroelastosis.

Thirty-two of the 33 patients had symptoms and signs of failure; these ranged from the relatively asymptomatic patient to symptoms or signs for sixteen years. All of the patients entering the hospital had been maintained on digitalis and some form of diuretic therapy.

Of our total of 33 patients, 25 presented with auricular fibrillation for the most part well controlled by their medical regimen. Ten patients of the 33 were also suffering from detectable aortic valvular insufficiency or stenosis. As with those patients requiring aortic valvular surgery, the majority of patients with primary mitral disease fell into groups III and IV of the American Heart Classification (table 4).

PREOPERATIVE EVALUATION

On admission a routine history and physical examination were done with careful attention being paid to the symptoms of cardiac decompensation or impending decompensation. Electrocardiography and vectorcardiography, as well as routine blood and urine tests, were done. As sometimes happens in patients with advanced cardiac disease, liver damage, poor renal function,[7] or limited respiratory functions were observed, and specialized studies were carried out to assess the degree of involvement in these patients in order to predicate special measures during and immediately after operation.

Total blood volumes (RISA) were done on all patients who were scheduled for surgery to obtain a base line for subsequent fluid and blood replacement postoperatively. We have found this to be of greater value than serial weights in the early postoperative period or venous pressure.[8] During this preoperative stage, patients were also given intensive medical management which included restricted activity, digitalis, diuretics, and a low-salt diet to reduce the degree of cardiac decompensation to a minimum and thereby increase, if possible, the myocardial reserve.

Finally, as a significant part of the evaluation of the cardiac disease and reserve and also as an aid to planning of the surgical procedure, all patients underwent left-heart catheterization with cardioangiography. When mitral disease or aortic regurgitation were suspected, catheterization was performed retrogradely via the femoral artery.[9] When the patient was felt to have a significant degree of aortic stenosis, cardioangiography was performed by means of a percutaneous chest puncture[10] with the introduction of a catheter for injection of dye and for the recording of pressures in the left ventricle and across the aortic valve.

Admission blood and chemistry values. The majority of these values were within normal limits. CO_2 was at the upper limits of normal and often represented a hypokalemic alkalosis secondary to diuretic therapy. The hyponatremia seen was most commonly associated with the low-salt diet and diuretics the patients had been on prior to admission.

Left-heart catheterization. Figure 1 illustrates left ventricular systolic pressures of the first 25 aortic and first 21 mitral patients. As expected,

TABLE 4
AMERICAN HEART CLASSIFICATION OF PATIENTS
WITH MITRAL VALVULAR DISEASE ON ADMISSION FOR SURGERY
(Operated upon December 1, 1961–December 1, 1963)

	I	*II*	*II–III*	*III*	*III–IV*	*IV*	*Total*
Males	0	1	0	11	1	6	19
Females	0	0	1	9	1	3	14
Total	0	1	1	20	2	9	33

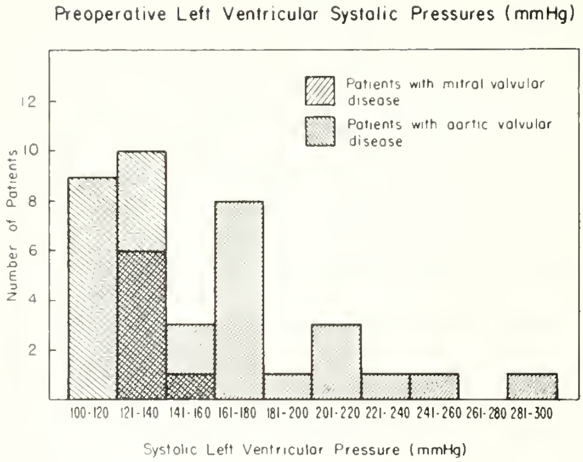


Fig. 1. Left ventricular systolic pressures (mm. Hg) obtained at preoperative left-heart catheterization in the first 21 patients with mitral valve replaced and in the first 25 with aortic valve replaced. Patients with aortic valvular disease had higher systolic left ventricular pressure than those with mitral valvular disease.

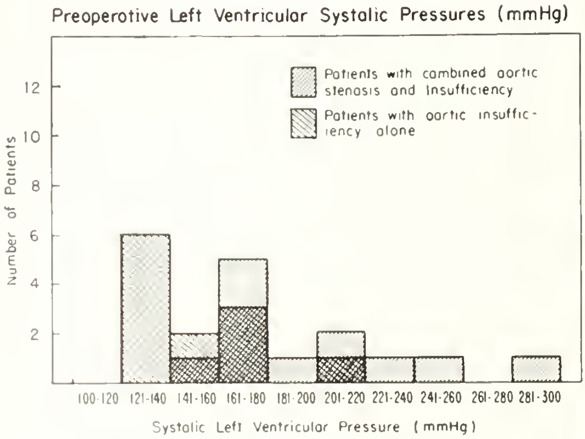


Fig. 2. Breakdown of 23 patients with aortic valves replaced into those with aortic stenosis combined with insufficiency and those with insufficiency alone. Presence of aortic stenosis explains higher systolic ventricular pressures in aortic valvular disease group (Fig. 1).

those patients with aortic valvular disease possessed a higher systolic left ventricular pressure than those with mitral valvular disease. The reason for this becomes apparent in figure 2 where the patients with aortic valvular disease are broken down into 2 groups: (1) those with aortic insufficiency alone and (2) those with combined aortic insufficiency and stenosis. As the severity of the stenosis increased, the left ventricular myocardium responded with hypertrophy and the pressure increased during each systole to eject a normal or near-normal cardiac output by developing a pressure gradient over the aortic valve. Of our patients with aortic stenosis combined with aortic insufficiency the systolic gradients ranged from 10 to 185 mm. Hg. Figure 3 is a representative composite of angiograms and pressure tracings obtained during left-heart catheterization of a patient with combined aortic and mitral valvular disease.

As the disease process progresses and the left ventricular myocardium starts to fail, the heart loses some of its power of contractility. This is recognizable by examination of serial left ventricular angiograms taken at various times during the cardiac contraction cycle. It may also be manifested as an increase in the end diastolic left ventricular pressure, 12 mm. Hg being considered as the upper limit of normal. Values above this, as in the patient (Fig. 3) who had an end diastolic pressure of 15 to 20 mm. Hg, usually indicate left ventricular failure.

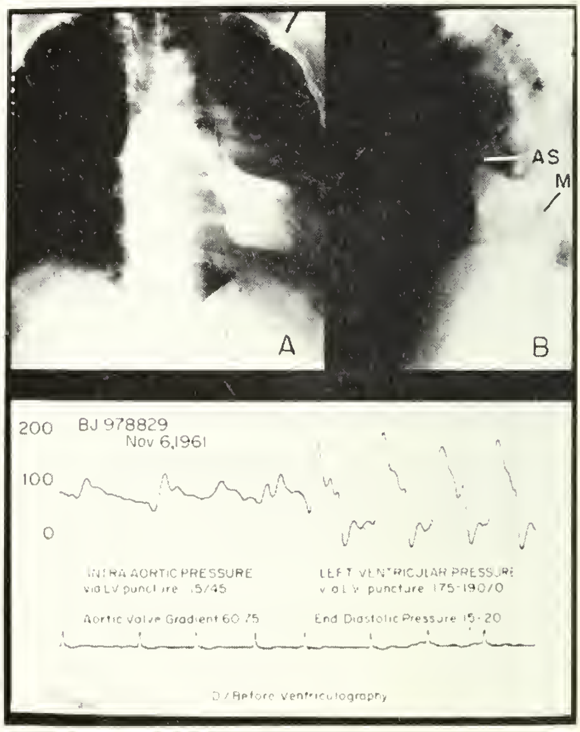

AS
M
A
B
200
BJ 978829
Nov 6,1961
100
0
INTRA AORTIC PRESSURE
via LV puncture 15/45
LEFT VENTRICULAR PRESSURE
via L.V. puncture 175-190/0
Aortic Valve Gradient 60-75
End Diastolic Pressure 15-20
D / Before Ventriculography

Fig. 3. Patient suffering from aortic stenosis and aortic insufficiency as well as mitral stenosis. Upper film (A) is left ventriculogram in anterior-posterior plane made by direct left ventricular puncture while (B) is lateral film taken at same time immediately after injection of dye. In lateral x-ray narrowed stenotic orifice of aortic valve is seen readily (A.S.) while below this the small nonfilling area indicative of the still scarred valve of mitral stenosis (M) is visible. Pressures obtained at catheterization (lower Fig. 3) indicated a moderately severe degree of aortic stenosis together with considerable regurgitation.

OPERATIVE PROCEDURE

All patients were operated upon with the aid of cardiopulmonary bypass utilizing the DeWall-Lillehei type bubble oxygenator[11] with Zuhdi heat exchanger.[12] For the approach to the mitral valve, a right posterolateral thoracotomy[1,13] through the bed of the fifth rib was used, while a midline sternotomy was used for exposure of the aortic valve.

The oxygenator was primed earlier in this series with equal parts of whole heparinized blood and low molecular weight dextran (Rheomacrodex) and more recently with low molecular dextran only (20 to 28 cc. per kilogram body weight).

For the mitral patients, moderate systemic hypothermia was used, reducing the rectal temperature to 28 to 30° C. For patients who were to have their aortic valves operated upon, a greater degree of systemic hypothermia was used, and the rectal temperature was dropped to a range of 23 to 25° C., while the esophageal temperature averaged about 17 to 19° C. As the total systemic temperature of the patient was lowered, the flow rate was also dropped,[14] utilizing flows as described by Gollan.[15] This lowered flow reduced the damage to platelets and red cells. Before actual operation was begun on the valve, the heart was deliberately placed in ventricular fibrillation unless spontaneous fibrillation had already occurred, with 60-cycle AC current in the range of 2 to 4 volts as previously described[16] for control of air embolism and to obtain a motionless operative area.

Aortic valve replacement. After the systemic temperature had dropped to desired levels and the heart arrested, the aorta was cross-clamped and a transverse incision was made above the aortic valve. In order to protect the myocardium from damage during this procedure, we have always utilized continuous bilateral coronary perfusion with cold arterial blood. The right coronary artery generally was perfused at 100 to 125 cc. per minute, while the left coronary artery was perfused at 125 to 200 cc. per minute by means of separate pumps. At times early in our experience, we also utilized ice saline slush packed loosely in the pericardium as an adjunct to the coronary perfusion to keep the myocardial temperature from drifting up during those periods when coronary perfusion had to be stopped, but more recently ice has not been used as certain technical problems have been resolved and reliance placed on continuous perfusion of both coronary arteries.

In this series, dacron stitches (2-0) were used in an interrupted mattress fashion to secure the rim of the ball valve to the aortic annulus. Each stitch was threaded through a small (4 mm.) length of Teflon spaghetti tubing for added holding strength, except in a few cases of aortic valve replacement with an annulus so small that the Teflon tubes were omitted. In aortic valve replacement it is particularly important for efficient function and the prevention of postoperative clotting that the prosthesis be perfectly oriented so that its long axis coincides with that of the ascending aorta. This has been achieved by first placing 3 stitches at the same level and at equidistant points around the annulus, usually at the commissures. We have experienced no instances of early or late disruption of this aortic prosthesis in our series to date.

Results of aortic valve replacement. Of the 41 patients operated upon, 16 died for an overall mortality of 39%. Of the 16 patients who did not survive, 9 died within twenty-four hours. The mortality was highest in those patients who had primarily aortic stenosis. In the first twenty-four hours, 7 of 19 patients operated upon with aortic stenosis died for a mortality of 36.8%. In the first twenty-four hours of those patients who had only aortic insufficiency, 2 died out of a total of 22 for a mortality of 9.1%. The overall mortality, which includes all hospital deaths irrespective of time interval after surgery, for those patients with aortic stenosis was 12 out of 19 or 63.2%. The overall mortality for all patients with aortic insufficiency alone was 4 out of 22 or 18.2%. No late deaths after hospital discharge have oc-

TABLE 5

OVERALL MORTALITY IN PATIENTS WITH BALL-VALVE REPLACEMENT OF DISEASED AORTIC VALVE

	Total	*Died within twenty-four hours*	*Died later during hospital stay*	*Hospital mortality*	*Late mortality**
Patients with primary aortic stenosis	19	7 (36.8%)	5 (26.3%)	63.1%	0
Patients with primary aortic insufficiency	22	2 (9.1%)	2 (9.1%)	18.2%	0
Total mortality				39.1%	

*Deaths occurring following hospital discharge

TABLE 6

DEATHS WITHIN TWENTY-FOUR HOURS OF SURGERY FOR TOTAL AORTIC VALVE REPLACEMENT (BALL VALVE)

Patient	*Age*	*American Heart Classification*	*Lesion*	*Gradient over valve*	*Total pump time*	*% coronary perfusion to aortic occlusion*	*Cause of death*
1	36	II	3+ AI trace MI	0	240	75	Left circumflex coronary artery off right coronary artery (perfusion catheter occluded this vessel); unable to defibrillate at operation
2	17	III	1–2+ AI Cal. AS	10	240	83	Left coronary artery extremely small; left ventricle extremely hypertrophied; died in systolic arrest; unable to defibrillate at operation
3	54	IV	2+ AI Cal. AS	120	285	85	Laceration of left coronary artery at aorta necessitated reclamping of aorta; unable to defibrillate at operation
4	51	III	1+ AI Cal. AS	125	261	91	Arrested 6 hours postoperatively; right coronary artery narrowed 60% and left 60-80% by atherosclerosis; right coronary artery showed poorly and left did not show on angiogram.
5	58	III	3+ AI Cal. AS	10	177	32	Respiratory death 10 hours postoperatively; low-output syndrome with complete surgical heart block
6	23	IV	4+ AI	0	116	91	One huge coronary artery to whole heart; left artery came off right with consequent infarction of areas in left ventricle by perfusion cannula; low-output syndrome; arrested 16 hours postoperatively
7	16	III	4+ AI 1+ AS 1+ MI	25	168	91	Multiple fibrillatory episodes at operation; unable to defibrillate
8	37	IV	4+ Cal. AS 2+ AI	185	285	17	Infarct prior to hospitalization; small aortic annulus; poor output over inserted aortic valve (9A); unable to defibrillate at operation; severe coronary artery disease post-mortem
9	15	II	2+ AI (congenital), AS	100-105	234	90 *Average* 76%	Unable to defibrillate; area supplied by anterior descending coronary artery appeared not to respond; circumflex and anterior descending had 2 separate orifices; only circumflex artery had been perfused

AI= Aortic insufficiency
AS= Aortic stenosis
MI= Mitral insufficiency
MS= Mitral stenosis
Cal.= calcium

curred in either of these groups (table 5).

Table 6 provides additional data upon the early (within twenty-four hours) deaths. Seven had severe combined aortic stenosis and insufficiency. Four of these patients had significant gradients across the aortic valve. The remaining 2 patients had severe aortic insufficiency, 1 with accompanying mitral insufficiency. Comparing these patients to those in table 7 which lists the survivors, it becomes obvious that one big difference between the two series lies in the presence of severe calcific aortic stenosis in the group that did less well. These patients have a very exaggerated work load placed on the left ventricle in an attempt to keep an adequate cardiac output as manifested by the large gradients observed at left-heart catheterization. This results eventually in loss of contractility and loss of myocardial reserve often with necrosis. This deleterious effect of added work on the left ventricular muscle may be seen by comparing this group (table 6) to those with an earlier degree of disease illustrated in table 7. Here careful examination of the preoperative ventriculograms showed that most of these patients had a better degree of left ventricular contractility which was an indication of good myocardial reserve. Additionally, those patients with calcific aortic stenosis have had, as a group, 3 other significant problems: (1) an increased incidence of coronary atherosclerosis, (2) focal myocardial necrosis, and (3) a smaller than normal aortic annulus.

Coronary artery perfusion at the time of operation related to the time the aorta was occluded was slightly higher in the survivors, the left coronary artery being perfused for 81% of the time the aorta was clamped in the survivors and 76% of the time in the nonsurvivors (tables 6 and 7). The difference, however, was small and,

TABLE 7

SURVIVAL AORTIC VALVE REPLACEMENT (BALL VALVE)

(December 1, 1961–December 1, 1963)

Patient	*Age*	*American Heart Classification*	*Lesion*	*Presurgery systolic gradient*	*Coronary artery filling and contractility (presurgery angiogram)*		*% coronary perfusion time to aortic occlusion time*
					Coronaries	*Contractility*	
1	49	III	4+ AI	0	Good	–	76
2	45	III	4+ AI 1+ MI	0	Good	Good	92
3	54	IV	4+ AI Cal. AS	0	Good	–	92
4	37	II	4+ AI trace MI	0	Good	Fair	73
5	55	III	4+ AI trace MI	0	Good	Poor	83
6	50	III	Cal. AS	0	–	–	87
7	44	III-IV	3+–4+ AI	0	–	–	–
8	36	III	1+ AI Cal. AS	80	Good	Good	81
9	32	IV	3+ AI 2+ AS	40	Good	Good	82
10	30	III	4+ AI Cal. AS 1+ MI	20	Good	Good	56
11	45	II	3+ AI	0	Fair	Good	82
12	30	IV	4+ AI	0	Good	Good	55
13	25	III	3+ AI with Cal. 2+ MI 1+ MS	0	–	–	87
14	62	IV	2+ AI IVSD	0	Poor visualization	–	86
15	47	III	4+ AI	0	Not filled	–	94
16	21	II	2+–3+ AI bicuspid valve	0	–	–	89
17	62	IV	4+ AI with aortic aneurysm	0	Good	Good	73
18	30	III-IV	2+–3+ AI	0	Dilation of right coronary artery	–	89
19	37	III	4+ AI 1+ MI	0	–	–	94
20	30	IV	3+ AI	0	Good	–	88
21	31	III	4+ Cal. AS small annulus	85	Good	–	85
22	19	II	3+ AI Cal. AS subvalvular diaphragm	–	Not visualized	–	89
23	48	III	Cal. AS 3+ AI 1+ MI	110	–	–	95
24	50	III	2+ AI MS	0	Good	–	80
25	23	III	4+ AI mild AS	45-80	–		94
							Average 81%

MI=Mitral insufficiency
MS=Mitral stenosis
AI=Aortic insufficiency

AS=Aortic stenosis
Cal.=Calcium
IVSD=Interventricular septal defect

therefore, we do not feel that it was a significant factor per se in the survival or nonsurvival of the 2 groups.

The most significant cause of death in this group (table 6) was related to congenital or acquired abnormalities in the coronary arteries. In patient 1 (table 6) the left circumflex artery came off of the right coronary artery. This was not recognized at the time of surgery. This was also the case in patient 6 in whom the entire left coronary tree came from the right main coronary artery. Consequently, the perfusing coronary catheters were inadvertently placed at or below the takeoff of these arteries and the left hearts were inadequately perfused throughout the course of the operations. In patient 9 the left circumflex coronary artery and the left anterior descending coronary artery had 2 separate orifices. This was not recognized, and only the left circumflex received blood during the period of coronary perfusion. The area supplied by this anterior descending artery did not respond at the end of this operation. Patient 2 had extreme hypertrophy of the left ventricle with an abnormally small coronary artery supply. As in the case of patient 4, this inadequate supply was due to severe coronary atherosclerosis. Poor coronary supply due to diseased vessels with the added burden of supplying a hypertrophied musculature decreased the myocardial reserve to the point where, postoperatively, the cardiac muscle either was unable to be defibrillated or to support the total circulation adequately.

Patient 3 had severe disease with a tremendous gradient and poor myocardial reserve and, despite adequate coronary artery perfusion at the time of surgery, was unable to be defibrillated after a laceration of the coronary artery necessitated added aortic occlusion. Patient 5 died ten hours postoperatively of a respiratory death. He had developed surgical heart block and, despite the fact that an external transistorized pacemaker was utilized, still exhibited a low-output syndrome up to the time of death. Patient 7 had severe aortic as well as mitral disease and was unable to be defibrillated at the time of surgery. At postmortem examination his coronary arteries were normal. Patient 8, a physician, had severe calcific aortic stenosis with a previous infarct clinically and poor reserve and was unable to be defibrillated at surgery.

Seven other patients died postoperatively under the following conditions: (1) two weeks postoperatively with empyema and persistent pneumothorax, (2) twenty-four days postoperatively with heart block and renal failure, (3) sixteen days postoperatively of infection, (4) twenty-six days postoperatively of infection superimposed on renal failure, (5) one and one-half months postoperatively; this patient was in heart block and arrested, after which an implantable pacemaker was inserted as an emer-

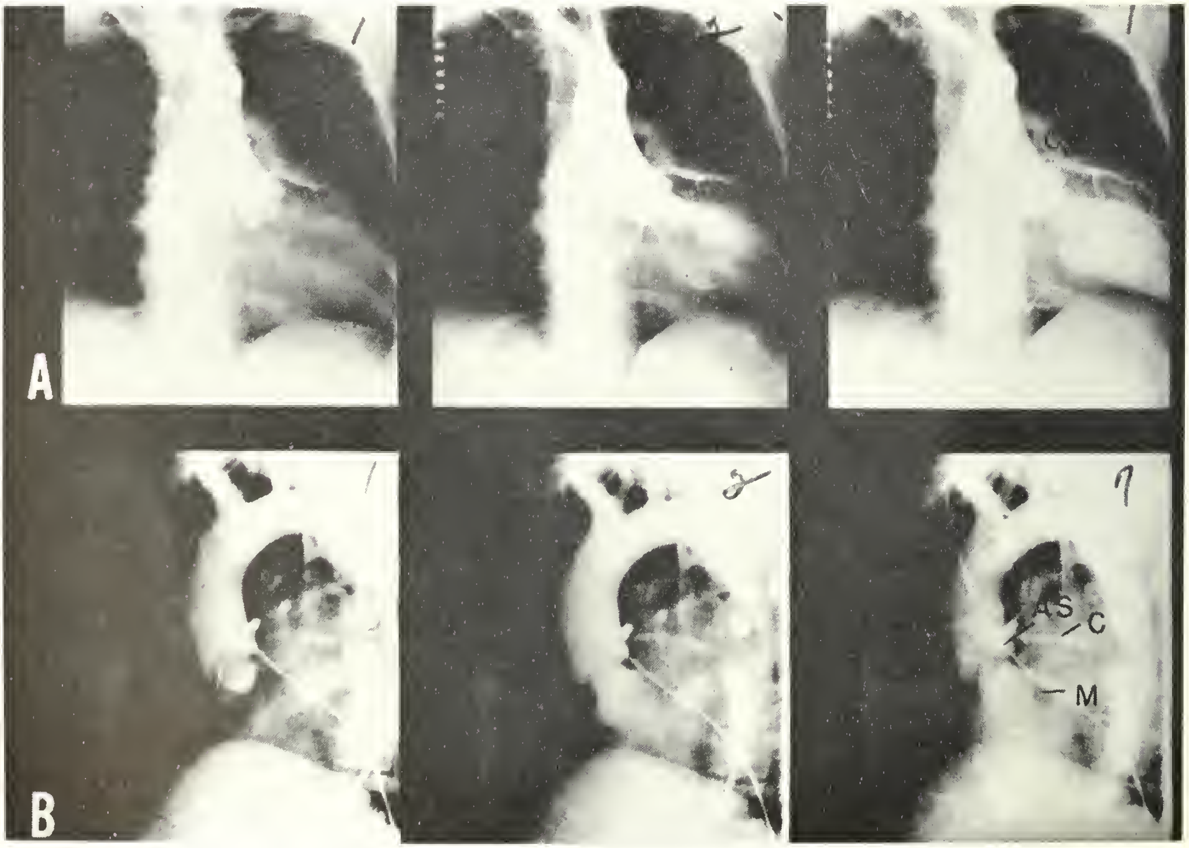


Fig. 4. Films taken at various times after contrast media was injected for an aortogram in same patient shown in figure 3. Upper series (A) were taken in anterior-posterior plane while lower series (B) were taken in lateral plane. No. 7 in series B shows stenotic aortic valve with its marked degree of regurgitation as well as nonfilling area (M) in left ventricle indicative of stenotic scarred mitral valve. In angiograms coronary arteries (C) stand out well. Careful attention must be paid to any nonfilling or irregularity of these vessels that may point to underlying disease. This is prime point in ultimate recovery of patient in postoperative period.

gency operation, but the brain damage incurred at arrest precluded survival, (6) ten days after surgery; this patient had been in transient complete heart block but died as a result of an acute coronary occlusion, and (7) two days postoperatively; patient had 4+ calcific aortic stenosis with preoperative complete heart block, arrested immediately preoperatively, and was resuscitated. Later during the operation he lost a considerable amount of blood in a short time and arrested a second time even though the blood volume was immediately restored. He exhibited intermittent cardiac arrhythmia for the next two days and finally arrested twice on the second postoperative day; he died despite countershock and closed-chest massage.

We have been impressed by the number of complete atrioventricular blocks that have occurred following aortic valve replacement. There have been 9 cases in this series of 41 (22%) patients. The critical area has been clearly defined.[17,18] Careful attention has therefore been paid to stitch placement in the dangerous area and only one complete block (this transient) has occurred since August 1, 1963. Six patients had calcific aortic stenosis alone or with aortic insufficiency, and 3 had aortic insufficiency. Four were transient, and 5 were permanent. Six of the 9 patients died before leaving the hospital. Of the 3 that survived, 2 patients with transient block were discharged in normal sinus rhythm while another with complete block was discharged after implantation of a pacemaker.

DISCUSSION

In examining the deaths in the group of patients with aortic valvular replacement, 2 things seemed to portend a poor result. One is the presence of severe calcific aortic stenosis with a contracted annulus. The presence of stenosis leads to an increase in left ventricular hypertrophy which may be extreme. This is followed in the late stage by loss of contractility which manifests itself as left ventricular dilation. This myocardial functional impairment results from the sustained load on the left ventricular chamber with the subsequent development of ischemia and necrosis even without organic coronary artery disease. Long ago it was noted experimentally that aortic stenosis of a mild degree was well tolerated. Occlusion past a critical point, however, resulted in a rapidly diminishing cardiac efficiency.[19] More than 90% of the normal ventricular energy released during contraction is released in the form of pressure energy.[20] With the development of ventricular hypertension, an additional strain is added. This occurs because greater energy is required for each contraction; consequently, an oxygen supply is demanded. In aortic stenosis the normal coronary blood flow is generally reduced; consequently, ischemia and necrosis with reduction in contractility and myocardial reserve occur in severe obstructions.

With the picture already described present, the condition of the coronary circulation becomes of prime importance. With normal coronary arteries (Fig. 4), the blood supply to the myocardium may be inadequate to the degree of actual ischemia and focal necrosis; if these vessels are diseased, the blood supply is further reduced.

Our results indicate that these 2 factors, the presence of severe acquired aortic stenosis with diminished myocardial reserve and inadequate or diseased coronary circulation or both, lower the chances for a favorable outcome in the postoperative period.

Complicating the postoperative course as mentioned previously has been the development of complete atrioventricular block in 9 patients. This is more likely to occur in those patients who have calcific aortic stenosis after the calcium and diseased valve are rongured away. Since the calcium often extends rather deeply into the adjacent tissue, after it is removed, the atrioventricular bundle running in the membranous septum is exposed and consequently rather easily damaged. This region lies in the zone between the right coronary and noncoronary cusp,[18] and an attempt should be made, if possible, to avoid placement of deep stitches in this area at the time of surgery.

Mitral valve replacement. The complication of low-output failure following total replacement of the mitral valve with a fatal outcome was a picture that we saw all too often before we recognized the importance of preserving papillary muscle–chordae tendineae integrity. The efficiency of the left ventricle in patients who have had long-standing mitral disease, particularly insufficiency with many intermittent bouts of cardiac failure, often may be severely compromised. This development of poor contractile power inherent in the disease process, coupled with the trauma of cardiac manipulation during surgery, can give rise to the syndrome of low-output failure postoperatively.

PRESERVATION OF PAPILLARY MUSCLE–CHORDAE TENDINEAE INTEGRITY DURING MITRAL VALVE REPLACEMENT

The fact that the papillary muscles, together with their chordae tendineae attachments to the mitral valve, play a role in the normal contraction cycle of the left ventricle has been conjectured for a considerable period of time.

In 1910 Straub[21] and later in 1911 Gesell[22] stated that there was a downward pull of the papillary muscles on the mitral ring during early isometric contraction of the left ventricle. In 1922, Wiggers,[23] in a study of ventricular volume curves, mentioned this earlier work and stated also that there was reduction of left atrial pressure; therefore, the chief movement of the mitral valve was downward toward the apex of the left ventricle in early systole. Later, Rushmer[24,25] showed this to be a fact. He noted that in the period of isometric contraction, more properly called isovolumetric contraction, the long axis of the left ventricle was reduced in length while the circumference of the left ventricle actually increased in size. This reduction in longitudinal axis of the heart was the result of papillary muscles chordae and trabeculae carneae continuity. Early in systole, they exert a pull on the attached chordae with a resultant drawing of the atrioventricular ring down into the left ventricle. Since the left ventricular pressure is rising at this time, the mitral valve remains closed. The left ventricular pressure is not greater than the diastolic pressure, so the aortic valve remains in the closed position and there is no volume change in the left ventricle. Therefore, there is a compensatory "bulging" of the ventricle which results in an increase of circumference and diameter as the longitudinal axis decreases. Moreover, the left ventricle is composed of 3 muscle groups that pull in various directions. The zone that is most important for effective left ventricular contraction is the middle group composed of circularly arranged muscle fibers.

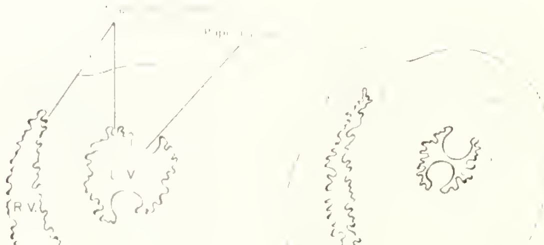


Fig. 5. Obliteration of dead space in ventricles by trabeculae carneae and papillary muscles occurs during systole by virtue of their mere physical presence. This may add to volume of blood ejected during each contraction and be another factor in increasing cardiac output in postoperative period. This, coupled with mitral valve-papillary muscle continuity which increases stroke volume, may also aid in preventing low-output syndrome seen in our earlier series where these structures were excised prior to insertion of ball-valve prosthesis (table 8).

As the atrioventricular ring descends in response to the early papillary contraction, this muscle group is "stretched" as the ventricular circumference enlarges. This extra "stretch" allows these fibers to develop more tension and consequently increases the force of contractions. Therefore, the stroke volume is over and above what it would be if this phenomenon did not take place.

In addition, the mere presence of the papillary muscles within the ventricle, even if they were devoid of chordae, may also be helpful to left ventricular function (Fig. 5).

In the early experience of investigators working with artificial mitral valves, the problem of tension on the mitral valve exerted by the papillary muscle was simulated by the attempt to suture into the left ventricle artificial chordae tendineae.

Animal experiments[26] where Starr-Edwards valves were inserted leaving the mitral valve intact showed that with appropriate technique the ball valve could function normally and the cardiac output could be adequately maintained. Massive left atrial clot was the mechanism of death in our long-term canine survivors.

Surgical technique. The general technique consists in an approach to the left atrium through the bed of the fifth rib via a right posterolateral thoracotomy. If it has been determined that the valve should be replaced, the anterior leaflet of the mitral valve is usually excised, leaving a rim of valve tissue (2 to 3 mm.) attached to the atrioventricular ring (Fig. 6, parts 1 to 4). The excision of the underlying chordae is as close to the leaflet as possible, leaving undisturbed the chordae going to the posterior leaflet. These posterior leaflet chordae run to both the anterior and posterior papillary muscles. Following this, the posterior leaflet is bound to its annulus by an over-and-over dacron stitch (Fig. 6, part 5). This is done to roll up the excess leaflet and to allow insertion of a suitably sized valve and to secure a seat for the prosthesis. The valve is then sutured in place utilizing 12 to 15 silk or dacron interrupted mattress stitches threaded through Teflon spaghetti tubing for support and placed circumferentially around the mitral annulus (Fig. 6, part 6).

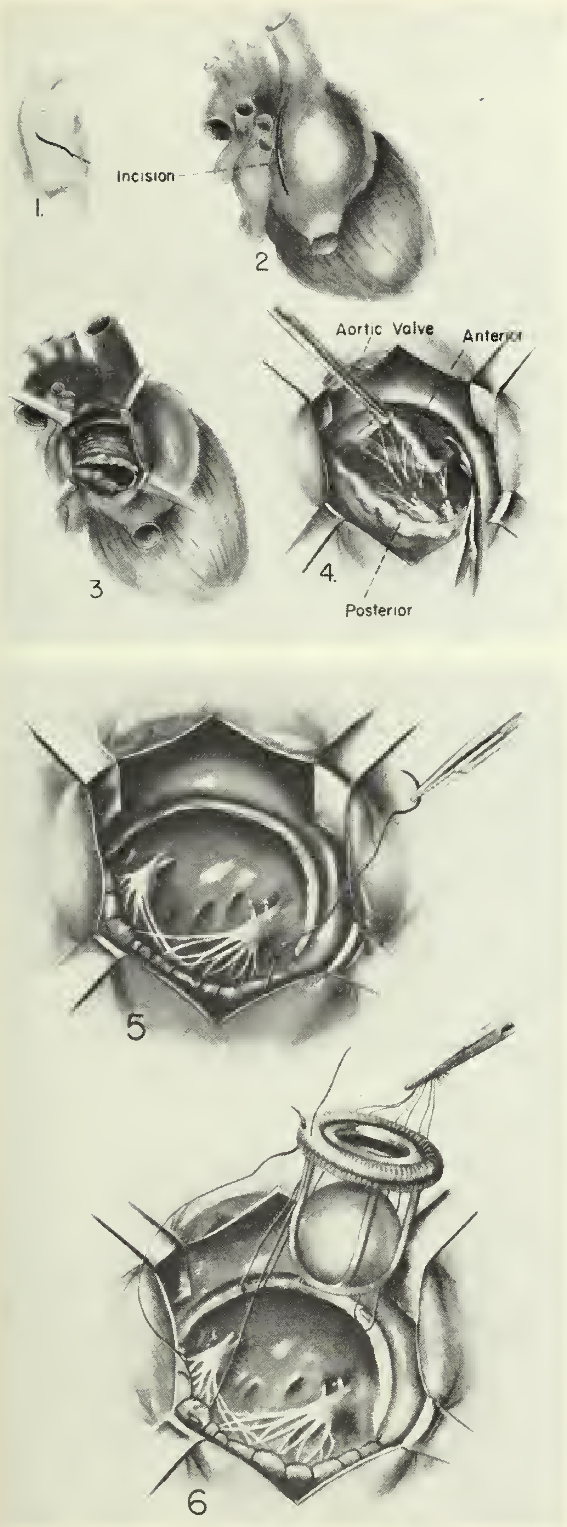
Figure 6, part 7 shows the mitral valve in place at the end of the procedure. There have been no instances of early or late disruption of the mitral valve prosthesis in this series to date.

Careful attention should be paid to the anterior leaflet of the mitral valve. In some cases where the anterior leaflet was not seriously diseased and we felt it advantageous to leave both leaflets intact, we then bound up both leaflets to their annulus in a fashion similar to that of the posterior leaflet, leaving all chordae intact. In addition to the advantages upon left ventricular function, this bound up anterior leaflet also gives added strength to this area by supplying more tissue through which the valve fixation sutures may be placed.

We have replaced the tricuspid valve with a ball-valve prosthesis in 12 patients with acquired disease with excellent results; in all of these no valvular tissue or chordae were excised. The reefing stitch was carried completely around the annulus before placing the valve fixation stitches. In 3 other patients with Ebstein's malformation having a ball-valve prosthesis it was, of course, necessary to excise the malpositioned leaflet tissue.

Often the anterior leaflet is the site of extensive calcification, especially if there is an element of calcific aortic valvular disease. The anterior leaflet most certainly should then be excised. Leaving it completely intact and without binding it up to the mitral annulus could lead to left ventricular outflow tract obstruction after placement of the valve prosthesis. This would be due to medial bulging of the diseased leaflet caused by pressure from the rim of the artificial valve.

Figure 7 illustrates these points. In the case pictured, there is coexisting aortic and mitral



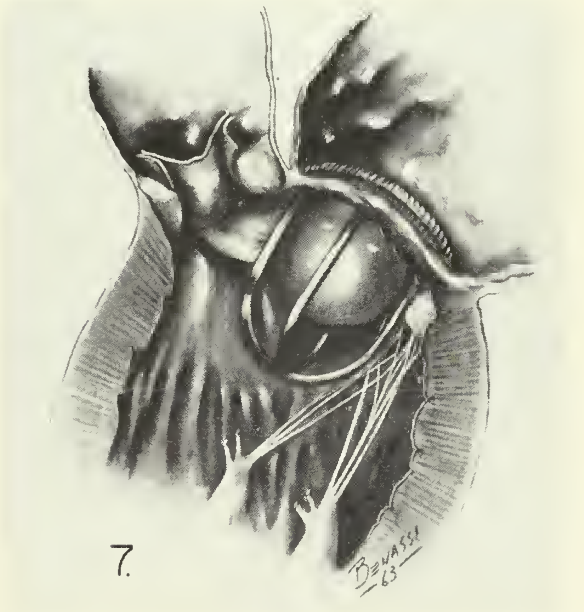


Fig. 6. Surgical technique for preservation of mitral valve–chordae tendineae–papillary muscle continuity. (1) Approach via right thoracotomy. (2) Area of incision in left atrium. (3) Exposure of diseased valve. (4) Excision of anterior mitral leaflet with chordae. (5) "Reefing up" posterior mitral leaflet to annulus, chordae and papillary muscles remaining intact. (6) Suture of artificial valve with interrupted mattress sutures, each reinforced with a 4-mm. length of Teflon spaghetti tubing. (7) Valve in place showing relationship to chordae running from "reefed up" posterior mitral leaflet to both anterior and posterior papillary muscles

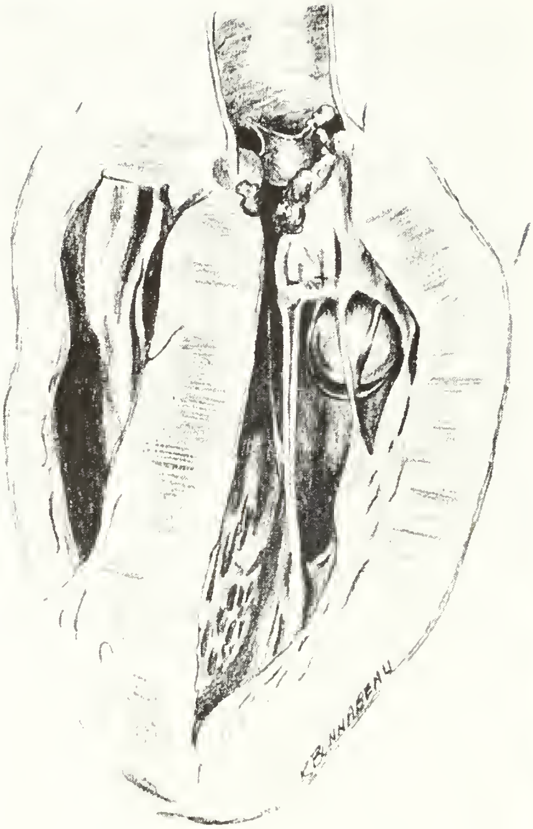


Fig. 7. Heart with papillary muscle–mitral valve continuity preserved entirely. Shows potential danger inherent in procedure if anterior leaflet of mitral valve is diseased and is left intact without being "reefed up" in manner similar to posterior leaflet. With presence of aortic disease and calcification of its ventricular surface, anterior leaflet is much thicker than normal. This, coupled with inability of operator to always visualize the true mitral "annulus" if this leaflet is not excised or bound up, can result in poor placement of aortic side of prosthetic rim 1 cm. or more below proper location. The bulge caused by rim of prosthesis plus thickened leaflet causes left ventricular outflow obstruction.

valvular disease. There is fibrous thickening of the mitral leaflets, and the anterior leaflet contains a large deposit of nodular calcium extending down from the aortic annulus on its ventricular surface. The anterior leaflet is not surgically bound up or excised. Due to the diseased leaflet, the mitral annulus is not able to be positively identified by the operator, and the prosthetic valve is sewn to the leaflet tissue approximately 1 cm. below its annulus. Subsequent bulging of the already greatly thickened and calcified leaflet into the outflow tract of the left ventricle causes fatal subaortic stenosis.

RESULTS

Of the 33 patients operated upon, 8 died for an overall mortality of 24%. Table 8 lists 15 patients operated upon between December 1961 to November 1962 (patient 15 was operated upon in November 1963) who had total mitral valve–chordae tendineae–papillary muscle excision and replacement with a Starr-Edwards prosthesis. Of this group, 5 died for a mortality of 33.3%. It may be noted that 4 of the 5 patients dying, plus 2 others in this group who survived, manifested a low-output syndrome despite the fact

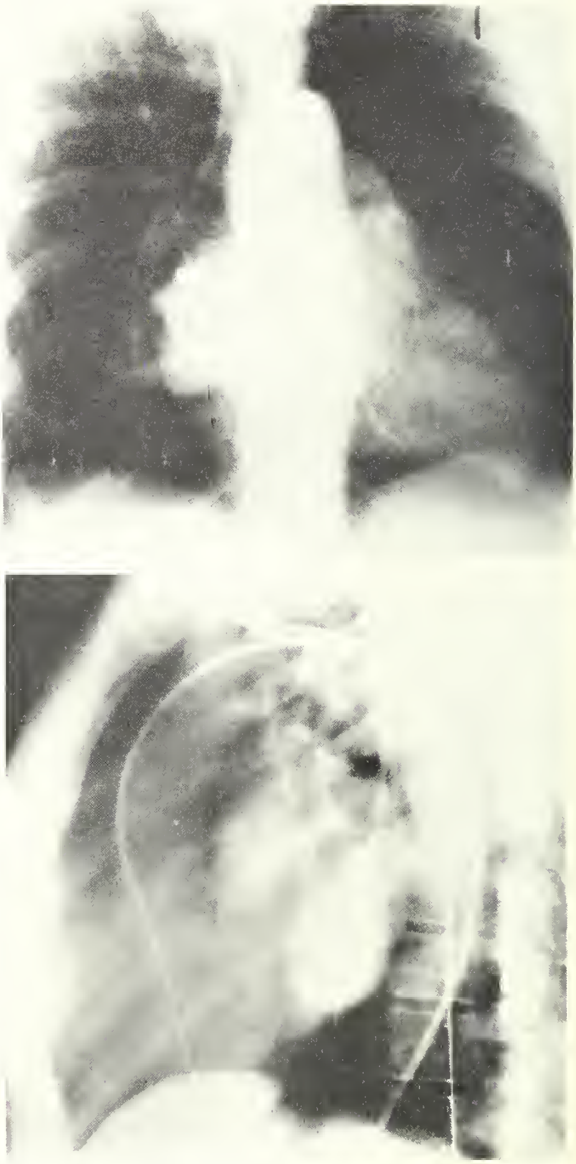


Fig. 8. Preoperative left ventriculogram of patient, E. J., age 37, with a severe degree of mitral insufficiency due to ruptured chordae tendineae. *(Top)* Anterior-posterior plane. *(Bottom)* Lateral view. Left atrium clearly outlined with contrast media in films taken two seconds after initial injection of dye into left ventricle.

TABLE 8

MITRAL VALVE REPLACEMENT

EARLIER SERIES WITH COMPLETE EXCISION OF ALL LEAFLET TISSUE CHORDAE AND PAPILLARY MUSCLES

(December 1961–November 1962)

Patient no.	*Age (yrs.)*	*American Heart Classification*	*Etiology*	*Valve disease (angiogram)*	*Operative findings*	*Bypass in minutes*	*ECG*	*Result*
1	41	3–4	RF	MI (4+)	Calcific valve	104	LVH AF	Low output; died 2nd postoperative day
2	41	4	RF	MI (3+) MS (1+)	Calcific valve	91	AF	Died; low output
3	61	2–3	Unknown	MS (4+)	Calcific, totally destroyed	96	RVH AF	Died 3 weeks after surgery; bleeding ulcer; low output
4	43	3	RF	MI (3+)	Calcific valve	78	AF	Good but low-output syndrome
5	48	4	RF	MI (4+)	Rigid valve	74	AF	Good
6	37	4	RF SBE	MI (3+)	Ruptured chordae	80	LVH AF strain	Good
7	44	3	RF	MI (2+) MS (1+)	Short chordae	71	RVH strain	Good
8	34	3–4	RF	AI (2+) MI (2+)	Short chordae	71	RVH strain	Good
9	50	3	RF	MI (4+)	Severe calcification	105	AF	Good
10	36	3	RF	MI (3+)	Ruptured chordae	74	LVH AF strain	Good
11	20	3	RF	MI (4+)	No calcium	90	RVH AF LVH	Good
12	17	2	RF	MI (3+)	No calcium, retraction of leaflets	100	Normal	Good
13	56	3	Unknown	MI (1–2+) MS (4+)	Complete fusion of chordae	105	AF RVH LVH	Good but low output
14	52	4	Probably RF	MI (1+) MS (3–4+)	Scarred and calcified	91	AF nonspecific ST changes	Low output; died heart failure, on art. kidney
15*	38	4	RF	MS	Scarred	132	RVH strain P mitral	Postoperative severe pulmonary edema; severe neurological damage; cardiac arrest 5 days postoperatively

AF=Atrial fibrillation	RF=Rheumatic fever	MS=Mitral stenosis
LVH=Left ventricular hypertrophy	SBE=Subacute bacterial endocarditis	AI=Aortic insufficiency
RVH=Right ventricular hypertrophy	MI=Mitral insufficiency	AS=Aortic stenosis

*This patient is not in our original series. She was operated in late 1963.

that the ball-valve prosthesis was functioning adequately.

Table 9 lists the patients who have had preservation of the papillary muscle–chordae–mitral valve relationship since the initial group in which they were excised. All were class III and IV and were similar in respect to the patients in whom the valve had been totally excised. With preservation of the papillary muscle–chordae tendineae relationship the mortality was 16.6%, 3 deaths in 18 patients.

Examination of table 9 shows that patient 10 had her total valve left in situ (but reefed up). One patient who died did so thirty-six hours postoperatively. At operation he was found to have significantly more aortic regurgitation than had been suspected in his preoperative aortogram. His severe mitral disease with low cardiac output had masked the degree of aortic insufficiency. The other patient, atherosclerotic and 58 years old, died six hours postoperatively despite emergency surgery after uncontrollable hemorrhage developed from a ruptured dissecting aneurysm of the ascending aorta about six hours after cardiopulmonary bypass.

Patient 13, although 62 years of age and arteriosclerotic, had done extremely well postoperatively when he had a sudden cerebrovascular accident twelve days postoperatively. He was recovering from this when he arrested twenty-five days after operation. He was successfully resuscitated but died suddenly twenty-eight days

TABLE 9

MITRAL VALVE REPLACEMENT

SUBSEQUENT SERIES WITH MITRAL VALVE–CHORDAE TENDINEAE–PAPILLARY MUSCLE RELATIONSHIP LEFT INTACT

(November 1962 –December 1963)

Patient no.	*Age (yrs.)*	*American Heart Classification*	*Etiology*	*Valve disease (angiogram)*	*Operative findings*	*Bypass in minutes*	*ECG*	*Result*
1	41	4	RF	MI (4+)	Ruptured chordae	91	LVH	Good
2	48	3	RF	MI (4+)	Scarring	85	LVH AF	Good
3	55	4	Unknown	MS MI (1+)	Calcific valve	66	RVH AF	Good
4	61	3	SBE	MI (4+) AI (2+)	Ruptured chordae	109	BVH	Died 36 hrs., ventricular fibrillation
5	24	3	RF	MI (4+)	Scarring	32	Normal	Good
6	55	3	Unknown	MS	Calcific valve	104	RVH AF	Good
7	58	3	RF	MS AI (1+)	Calcific valve	76	BVH AF	Good
8	58	3	RF	MI (3+) MS AI (1+)	Scarring	80	RVH AF	Good
9	32	4	RF SBE	MI (3+) AI (1+)	Scarring	65	AF	Good
10	29	3	Congenital	MI (3+)	Cleft	65	LVH AF	Good
11	15	4	Fibroelastosis	MI (34+) Tricuspid insufficiency; trace AI	Scarring and short chordae	75	BVH AF	Good
12	58	3	Unknown	MI (3+)	Ruptured chordae	83	LVH 1st degree heart block	Died 6 hrs. postoperatively of dissecting aortic aneurysm
13	62	3	Unknown	MI (3+) AS (1+)	Scarring and multiple ruptured chordae	111	LVH	Sudden CVA 12 days postoperatively; 25 days postoperatively cardiac arrest; died 28 days postoperatively; no clots in heart at autopsy
14	37	3	Unknown	MS MI (3+) AI (2+) AS (2+) (grad. 35)	Fibrous and calcified TI (3+)	135	AF RVH strain	Good
15°	15	3	Unknown	MI (3+)	Large annulus; diffuse scarring	61	AF LVH strain	Good
16	33	3	RF	MI (2+) to MS AI (1+)	Scarring; chordae short; calcium in commissures	71	RVH RAH LVS	Good
17	56	3	Unknown	MI (4+)	Dilated mitral annulus	93 35	LVH strain	Good
18	60	3	Unknown	MI (4+)	Diffuse scarring; ruptured chordae; calcific annulus	64	AF	Good

RF=Rheumatic fever
MI=Mitral insufficiency
MS=Mitral stenosis
AI=Aortic insufficiency

AF=Auricular fibrillation
SBE=Subacute bacterial endocarditis
LVH=Left ventricular hypertrophy
RVH=Right ventricular hypertrophy

BVH=Biventricular hypertrophy
RAH=Right atrial hypertrophy
LVS=Left ventricular strain

°First operation 1961, insertion of spindle in mitral valve for insufficiency

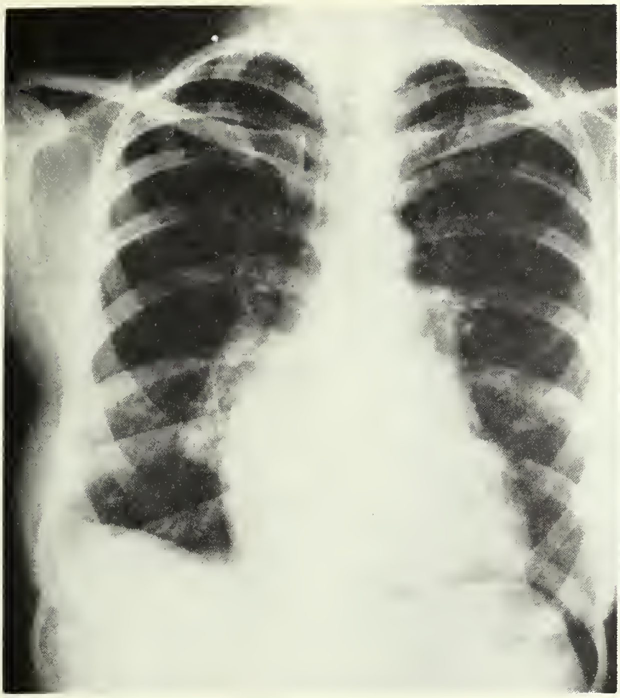
postoperatively. Autopsy failed to reveal a definite etiology for his sudden death, since the prosthetic valve and heart were free of clot.

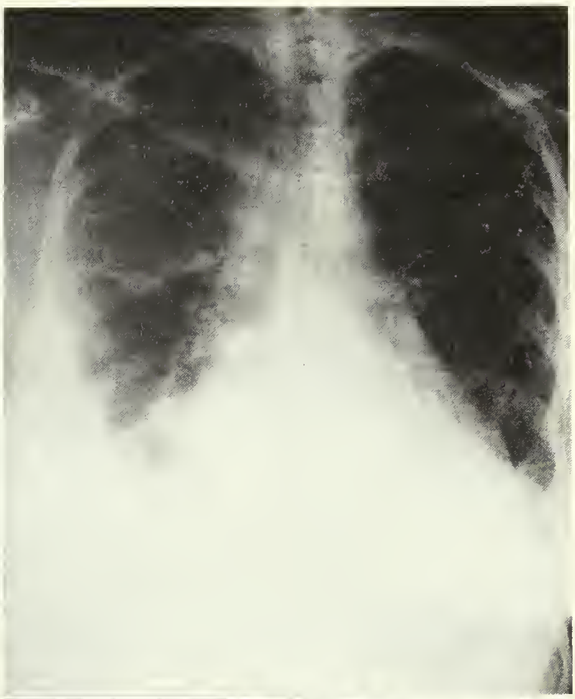
Our results in these patients support the view that maintenance of this chordae continuity can and does alter the postoperative course by minimizing the development of a low cardiac output in the immediate postoperative period. In the group of patients with preservation of the papillary muscle–mitral valve continuity (table 9), 2 of the 3 deaths were clearly unrelated to early myocardial failure.

The relative freedom of our patients from clotting difficulties indicates that the leaving in situ of the papillary muscles and their chordae is not at all dangerous in that respect.

FOLLOW-UP

Up to the present time no late deaths have occurred in any of our patients surviving with their





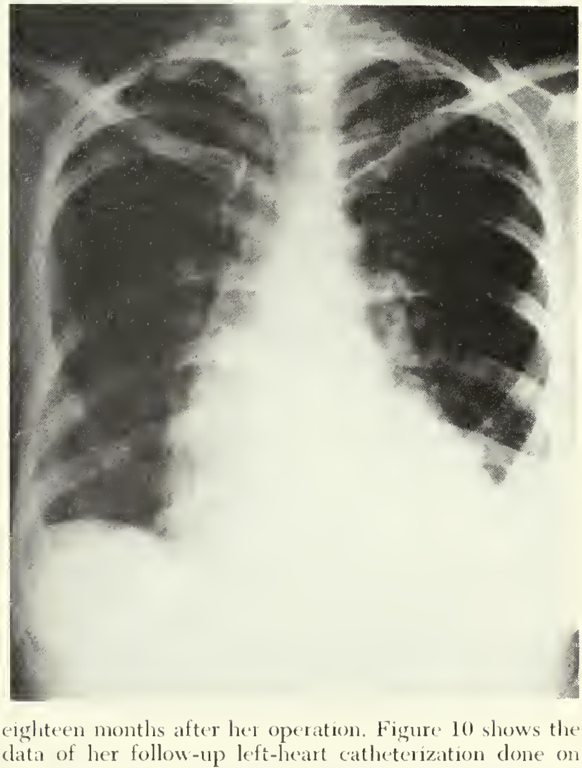


Fig. 9. Series of chest films on patient E. J. Preoperative ventriculogram appears in figure 5. *(Top left)* Several days before operation. *(Top right)* Several days after operation. Prosthetic valve seen in mitral area. *(Bottom right)* One and one-half years later

mitral and aortic valves replaced. We have begun to obtain late postoperative left-heart catheterizations on some of the patients operated upon earlier in this series.

Case 1. Mitral valve replacement: E. J., a 37-year-old female patient weighing 54 kg., had severe mitral stenosis and was operated upon in 1947 when an azygos vein left atrial shunt was done in an attempt to decompress the left atrium. Several years later she had a closed mitral commissurotomy, one of the early patients to have this operation, and some time following this she developed massive mitral regurgitation which was found later to be on the basis of ruptured chordae tendineae. Figure 8 *(Top)* shows an anteroposterior film of her preoperative left ventriculogram before insertion of a ball-valve prosthesis while figure 8 *(Bottom)* shows a lateral film taken at the same time. These films were taken two seconds after the injection of contrast media, yet her left atrium was still densely opacified. The small opaque object in the left atrial region is the metallic connector, uniting the azygos vein and the left atrium. Her preoperative catheterization data revealed a left ventricular pressure of 155 to 175/0 mm. Hg and an end diastolic pressure of 10 to 15 mm. Hg. The aortogram and ventriculogram revealed good coronary arteries and fair contractibility. She was operated upon on December 13, 1961, and a Starr-Edwards prosthetic valve replaced her diseased mitral valve. Figure 9 *(Top left)* is the routine preoperative x-ray taken on December 4, 1961. Figure 9 *(Top right)* is a postoperative film taken on December 21, 1961, where the Starr valve may be seen in place. Figure 9 *(Bottom right)* is a routine chest done on July 9, 1963, eighteen months after her operation. Figure 10 shows the data of her follow-up left-heart catheterization done on July 8, 1963. This revealed an end diastolic pressure and ventricular pressure within normal limits. A left ventriculogram revealed no mitral insufficiency and excellent contractibility of the heart.

Case 2. Aortic valve replacement: S. H., a 54-year-old woman weighing 64.3 kg., developed severe aortic insufficiency following an attack of acute bacterial endocarditis (Streptococcus hemolyticus). She was class IV on admission to the hospital. Her initial preoperative

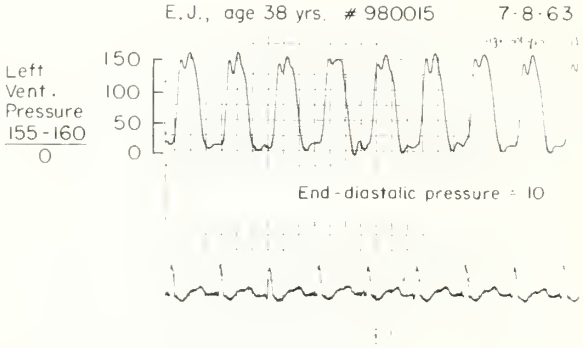


Fig. 10. Results of left-heart catheterization done on patient E. J. Normal left ventricular and end diastolic pressures shown. Left ventriculogram revealed no mitral insufficiency and excellent contractility of heart.

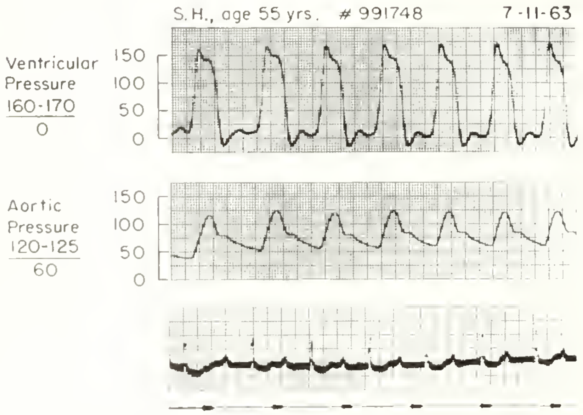


Fig. 11. Postoperative left-heart catheterization data on patient S. H., ten months after insertion of a 9A Starr-Edwards valve in aortic region for aortic insufficiency following acute bacterial endocarditis. Systolic gradient of 40 to 50 mm. Hg is an indication of some stenosis at the prosthetic valve shown although the patient has returned to normal household activity without difficulty.

heart catheterization showed a left ventricular pressure of 155 to 175/0 mm. Hg with an end diastolic left ventricular pressure of 35 mm. Hg and an aortic pressure of 175 to 180/35 to 50 mm. Hg. She was operated upon on September 21, 1962, and a 9A Starr-Edwards valve was put in the aortic region. Except for a period of transient complete heart block, she made an uneventful recovery and went home. Since that time she has done extremely well and is able to do the normal household routine without difficulty, which represented a very great improvement. Figure 11 shows her recatheterization data on July 11, 1963. As can be seen, she has a gradient of 40 to 50 mm. Hg over the aortic valve, indicating some degree of stenosis created by the ball valve.

Case 3. Aortic valve replacement: F. M., a 32-year-old man weighing 87.6 kg., had had a coarctation of the aorta resected in 1956 and was in class IV on admission to the hospital. Figure 12 *(Top left)* is his chest x-ray before his coarctation was resected. His blood pressure at this time was 300/0 mm. Hg. Figure 12 *(Top right)* is his chest x-ray after the operation to repair his coarctation but before operation on his diseased aortic valve. Both reveal extreme left ventricular hypertrophy. Preoperative left-heart catheterization revealed his contractility and coronaries to be in good condition, while a gradient of 40 mm. Hg was demonstrated over the aortic valve. Preoperative ventriculogram revealed 2+ aortic stenosis and 3+ aortic insufficiency. He was operated upon for replacement of his aortic valve on July 21, 1962. A 2A Starr-Edwards aortic valve was inserted, and he was admitted for recatheterization studies on July 8, 1963. Figure 12 *(Bottom left)* is the routine chest film taken at this time showing an obvious diminution in heart size. Heart catheterization at this time showed a ventricular pressure of 140 to 145/0 mm. Hg, an arterial pressure of 140 to 145/80 mm. Hg, with no gradient over the prosthetic aortic valve. Clinically he has done very well and is able to carry on his job as an insurance salesman without difficulty.

Case 4. Aortic valve replacement: J. A., a 46-year-old male weighing 52.7 kg., was admitted for surgery with 3+ aortic valvular insufficiency and aneurysmal dilation of unknown origin of the ascending aorta. Preoperative aortic pressure obtained during retrograde aortogram showed a pressure of 110/50 mm. Hg. On August 13, 1962, the patient was operated upon and his aortic valve was replaced with a Starr-Edwards 3A ball-valve prosthesis. Some of the aortic wall was removed and aneurysmorrhaphy was performed with additional reinforcement of the ascending aorta with a jacket of knitted dacron. He was readmitted on July 29, 1963, for follow-up examination and recatheterization. Results showed a left ventricular pressure of 135/0 mm. Hg, an aortic pressure of 135/85 mm. Hg, and an end diastolic left ventricular pressure of 0 to 5 mm. Hg. There was no systolic gradient over his aortic valve. He has had no complaints since surgery and clinically was very well.

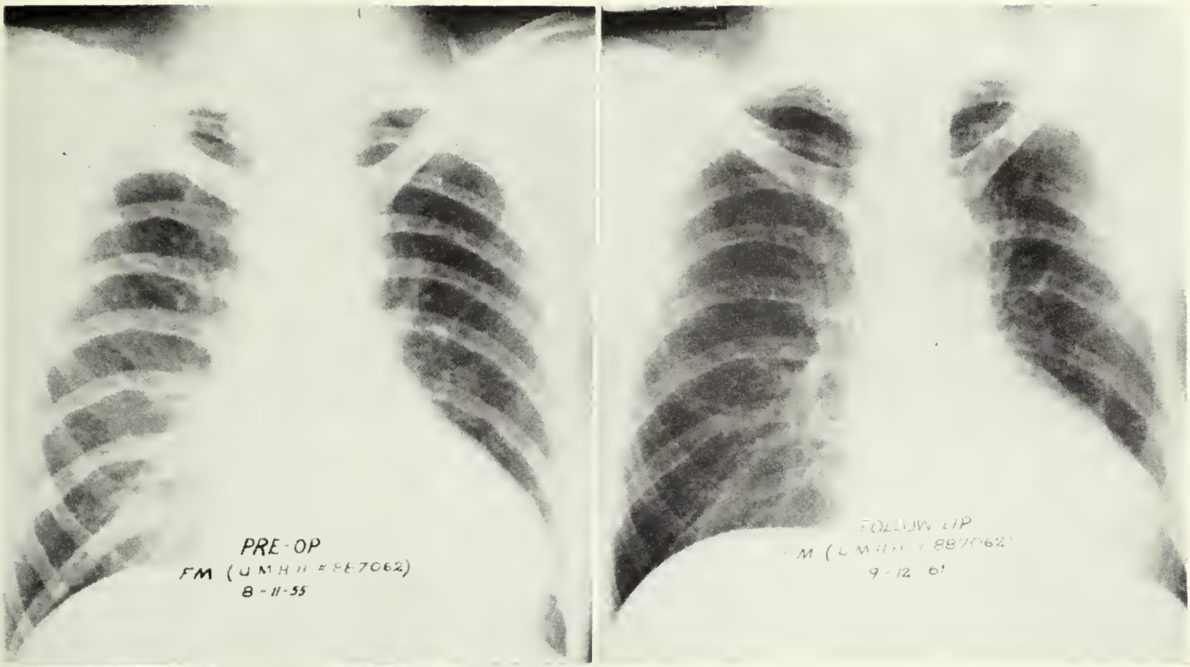
We have recommended that all of our patients with prosthetic valves be placed on routine anticoagulant therapy beginning about seven days after surgery. They have then been maintained on oral anticoagulants after discharge. We have had 2 cases of definite embolic phenomena, both in mitral valve replacements (thirteen days and three weeks postoperatively), with no fatalities in our patients. Consequently, until more is known about clotting factors and their relationship to a long-term prosthetic valve of this type, we feel the prophylactic anticoagulant therapy is warranted.

CONCLUSION

1. The aortic and mitral valves can be operated upon successfully and totally replaced with a prosthetic device of the ball-valve type with good long-term results. Seventy-four cases are reported.

2. In aortic valvular disease the outcome in the immediate postoperative period is influenced primarily by the presence of calcific aortic stenosis as well as the presence or absence of disease in the coronary arteries.

3. We have significantly decreased the appearance of a low-output syndrome postoperatively in patients who are suffering from severe mitral



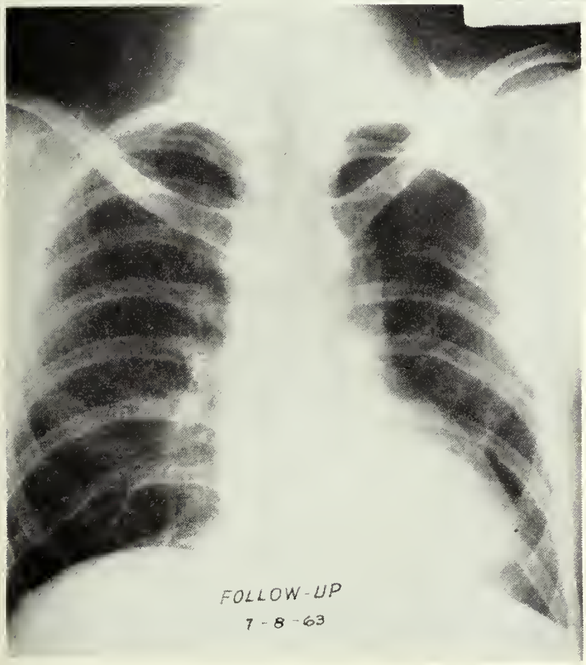


Fig. 12. Patient F. M., age 32, operated upon in 1956 for coarctation of aorta and later for 3+ aortic insufficiency and 2+ aortic stenosis with systolic gradient of 40 mm. Hg over aortic valve. Diseased valve replaced with 2A Starr-Edwards prosthesis. *(Top left)* Routine chest taken before operation on coarctation of aorta and diseased aortic valve. *(Top right)* Film taken prior to aortic valvular surgery but five years after coarctation repair. Patient admitted to hospital clinically as class IV. *(Bottom left)* Postoperative routine chest film one year after aortic valve was replaced with prosthetic device. Note marked diminution in heart size.

disease by leaving the papillary muscle–chordae tendineae–mural leaflet relationship intact. We feel this adds strength to each contraction.

4. There have been no late deaths in the follow-up period to date (thirty months) in any patient with replacement of aortic or mitral valves with the ball-valve prosthesis.

We would like to express our appreciation to Mr. Lowell Edwards and his associates and Dr. A. Starr for their keen interest in the development of this prosthesis and their cooperation in its continuing refinement.

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WEAKENED SKELETAL MUSCLES as a result of prolonged chloroquine therapy return to near normal when treatment is stopped. Loss of strength is most pronounced in proximal muscles, although trunk, neck, and face muscles may be affected. Even a slight weakness will reduce or eliminate muscle-stretch reflexes. Abnormal electromyographic patterns range from myopathy and mixed neuropathy and myopathy to neuropathy with low-conduction velocity of peripheral nerves. In 3 of 4 patients with chloroquine neuromyopathy, dosage was 500 mg. a day for at least a year; in 1, muscles weakened at six to nine months after 250 mg. per day. Following cessation of treatment, muscle strength improved within a month.

JACK P. WHISNANT, M.D., RAUL F. ESPINOSA, M.D., ROBERT H. KIERLAND, M.D., and EDWARD H. LAMBERT, M.D., Mayo Clinic and Foundation, Rochester, Minn. Proc. Mayo Clin. 38:501-513, 1963.

PILONIDAL DISEASE is effectively treated by a modified marsupialization procedure which shortens healing time and leaves a smaller wound than the standard operation. All diseased tissue is excised in contrast with the usual practice of leaving a residual scarred wall of the sinus. The depth of excision is determined by the extent of scarring and usually must be down to the sacral fascia. After elliptical excision of tissue, incisions are made at the inferior and superior apexes of the wound to create a triangular flap at each apex. At the same time, lateral flaps are formed to the left and right of the wound. A wedge of fat is excised from beneath each flap. The wound is closed by advancing each of the 4 flaps and suturing them to the sacral fascia with 1-0 chromic catgut. Treatment with hot sitz baths is started on the day after operation, and full ambulation is permitted. The modified operation has been performed on 24 patients with pilonidal disease.

CHARLES A. NELMEISTER, M.D., University of Minnesota, Minneapolis. Sth. med. J. (Bgham, Ala.) 56:730-732, 1963.

Fargo Clinic Series

A Dermatologic Hobnob

W. L. MACAULAY, M.D.

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SYPHILIS

SEVERAL YEARS AGO the American Board of Dermatology and Syphilology dropped the syphilology part of its title. The Archives of Dermatology and Syphilology soon followed suit becoming the A.M.A. Archives of Dermatology. Subsequently the American Academy of Dermatology and Syphilology likewise shortened its name. It would seem that dermatologists now regard syphilis as an unwanted stepchild.

The original association of dermatology and syphilology is easily understood. In the early days the cutaneous manifestations of this disease were most often the key to the diagnosis. The current trend to dissociate the two specialties is a little more complex. The continued improvement in serologic testing for syphilis has eliminated some of the niceties of clinical diagnosis. The specificity of pencillin therapy has had a tremendous influence. Its simplicity has invited everyone to "get into the act." True syphilologists, men of wide medical knowledge, keen observation, and crusading dedication, have long since faded from the scene. The declining incidence of syphilis in recent years has been the coup de grâce.

The decision to divorce syphilology from dermatology is not disputed. It was inevitable. However, the timing and reassuring implications of this action may be unfortunate. Syphilis is on the march again. The incidence curve has reversed itself. This disease, for one reason or another, has been known to go through declining phases in times past only to reappear as a major menace. Public health officials have never been impressed with the claim that penicillin alone would drive syphilis into extinction.

Since syphilology as a specialty no longer belongs to any one group, the implication is that it now belongs to the entire medical profession. The responsibility cannot be taken lightly. Penicillin therapy per se is not the answer. The problem has many facets other than therapy. These include public education, case-finding, contact rundown, and all other tried and proved principles of epidemiological control.

Those in relatively rural communities have never faced the specter of syphilis as it exists in the large metropolitan areas and seaports of the world. However, present-day rapid transportation and situations fostered by unsettled world conditions will bring this disease to our doorsteps. Even now it is not a total stranger.

ACNE

It behooves all physicians to take a sympathetic interest in teenagers with the acne problem. These young people come seeking understanding and help, and they should never be further embarrassed by the physician's indifference or outright scoffing.

Admittedly, there is no quick or specific cure for acne. The physician, however, can provide good advice and direction. Therapy improves the situation to varying degrees and, most importantly, minimizes or averts pitting and scarring.

A simple plan of management should be adopted by each practitioner, a plan stressing a drying regimen, frequent use of soap and water, and avoidance of hair oils and facial cosmetics. Frequent shampooing is advisable, and any concurrent dandruff must be controlled. Some simple dietary suggestions including avoidance of chocolate and fried and greasy foods are in order. The practitioner should familiarize himself with one or several of the many acne preparations on the market and readily prescribe them.

Unfortunately, the basic hormonal imbalance in acne is not correctable by any means known at present. Hormonal therapy for acne is empiri-

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cal and mostly unrewarding. Other forms of parenteral and oral therapy leave much to be desired. In recent years, long-term, low-dosage tetracycline therapy employed in the management of acne has produced gratifying and sometimes quite dramatic results. Because of economic considerations—these capsules cost 40 to 50 cents each—the usual dose has been a 250-mg. capsule per day. Such effective low dosage suggests that possibly something other than an antibacterial effect is responsible. Most improvement occurs in the papulopustular and pustulocystic varieties of acne. Since postacne scarring and pitting are associated with these varieties of acne, such sequelae have been minimized or avoided. At the same time, the patients' appearances have been improved and their morale bolstered.

Aside from expense, there are few contraindications to prolonged low-dosage tetracycline therapy. Concomitant yeast infection, of course, interdicts this approach. Pregnancy also precludes this course, since tetracycline, via the maternal circulation, is deposited in fetal teeth and bone, the deciduous teeth of the offspring ultimately showing a yellowish discoloration.

IDIOPATHIC DIFFUSE HAIR LOSS IN WOMEN

There is a general feeling among dermatologists that more and more women in the younger and middle age groups are complaining of a diffuse hair loss. This development has been insidious, and, indeed, there are some who maintain that the problem is no more or less than it ever was. Unfortunately, no one has kept statistics to prove or disprove the point. I feel that there is a definite increased incidence of this problem. These frightened women are coming in larger numbers than they did five or ten years ago.

Everything from radioactive fallout down through fluorinated drinking water has been incriminated by the laity. Physicians who have studied the problem still have no clear-cut explanation, but the general consensus seems to be that women nowadays are just doing too much to their hair. Aside from all the mechanical manipulation involved in creating a fancy hairdo, the list of chemical preparations used on the hair is truly staggering. There are rinses, tints, bleaches, dyes, wave sets, sprays, and other preparations in seemingly endless number. A whole array of new gadgets has been introduced to wave and set the hair. Husbands stumbling across their wives' cosmetic boxes for the first time are in for a shock. Worse yet, observing one of these coiffures in the making is akin to beholding an apparition.

It has been recognized for some time that any constant traction or pull on the hair will in time have a deleterious effect. In the recent past when pony tails were fashionable, thinning of the hair in the temporoparietal areas of the scalp was frequently observed. Brush rollers and other curling devices which put the hair under too much tension are harmful. In the resulting tug-of-war, the hair breaks or the follicle eventually gives up, resulting in possible permanent damage to the hair papilla. Sleeping with curlers in the hair, especially the new roller types, is conceivably more harmful than their daytime use, since the position of the head in sleep may exert traction on the hair which is not readily perceived in the slumber state. Women themselves have recognized some of these traumatic influences, and their complaints have lead to the introduction of foam-rubber rollers which presumably are less harsh.

Since time immemorial people have assumed that brushing the hair had a wholesome effect. "A hundred strokes a day" was a good rule of thumb. To my knowledge there has never been any scientific evidence to encourage this ritual. While untold amounts of good were ascribed to this practice, there seemed to be little or no harm done so long as natural bristle brushes were used. However, with the advent of the synthetic brush, the situation has changed. Synthetic brushes are recognized as being traumatic to the hair, the bristles breaking and shredding the hair and pulling it out by the roots. A diffuse thinning of the scalp hair may result from this cause alone.

Genetic factors, hormonal changes, recent illness, local scalp conditions, and other influences must all be considered in this problem. Possibly the foregoing is an oversimplification of a deeper mechanism. Nevertheless, the current emphasis on hair setting and styling seems to be at least contributory to the current problem of diffuse hair loss in women.

GRISEOFULVIN

This drug is a welcome addition to our therapeutic armamentarium. It may not work as well for us as the pictoral pharmaceutical advertisements lead us to expect, but for most superficial fungus infections of the skin it serves admirably.

Physicians prescribing griseofulvin should acquaint themselves with its mode of action and with the conditions wherein it is applicable. The drug, taken by mouth, is deposited in the basal layers of the epidermis from whence it progressively advances in the evolution of the cells to eventual discard by exfoliation. Encountering fungus during epidermal transmigration, griseofulvin exerts a fungistatic effect, altering the metabolism of the fungus and holding it in abeyance until drug, fungus, and corneum are eventually shed.

For superficial ringworm, griseofulvin should be taken for a minimum period of three weeks. Longer periods of therapy are often necessary. Even so, complete eradication is not assured. One of our patients has been on griseofulvin for 18 months, and active mycelial elements are still demonstrable in scrapings from his skin! Fungus infections of the fingernails demand at least 6 to 8 months of constant therapy. Even then there are frequent disappointments. Fungus infections of the toenails may be impossible to eradicate regardless of the length of griseofulvin administration.

It must be emphasized that griseofulvin is indicated only for the superficial dermatomycoses. These include tinea circinata (ringworm), dermatophytosis (athlete's foot), tinea cruris (jock itch), tinea capitis (scalp ringworm), and onychomycosis (fungus infection of the nails). Griseofulvin has no effect on tinea versicolor, yeast (candida) infections, and the deep mycoses.

Griseofulvin is a much misused drug. The diagnosis of fungus infection is too glibly made. Every round lesion is not a ringworm. Nummular eczema, dyshidrotic eczema, psoriasis, and other conditions may mimic ringworm but will not respond to griseofulvin. Not all eruptions on the feet are dermatophytosis.

Dermatologists frequently have difficulty in distinguishing by inspection alone whether a given eruption is of fungal origin or not. It is a good rule never to prescribe griseofulvin until the mycelial elements have been demonstrated on a potassium hydroxide smear of skin scrapings or the fungus has been grown on Sabouraud's medium. These are both simple procedures which may be carried out in the office. By adhering to such criteria of diagnosis, the true usefulness of griseofulvin is better appraised and appreciated.

STEROIDS

These drugs are a godsend. They provide hope, relief, and palliation. Yet for all these virtues, the dispensing of steroids can never substitute for the making of a diagnosis. An old man's winter itch still requires proper recognition and the prescription of an oil-in-water bath and not steroids. We all may be tempted in times of diagnostic desperation to employ these drugs empirically. The rule of diagnosis before therapy cannot be flaunted too often if one is to maintain a scientific approach to the practice of medicine.

Not every case of poison ivy dermatitis requires steroid therapy, dazzling pharmaceutical advertisements notwithstanding. Why use an elephant gun on a mouse? Such power should not be unleashed for relatively minor afflictions. These drugs are not simple anti-itch pills.

There is a general impression abroad that the steroids have eliminated most of dermatology's problems. They haven't. In fact, steroids actually seem to stall some dermatoses in their natural course and prolong the discomfort unnecessarily. In some situations, it would seem, the body's mechanisms are best left alone to fight the battle out with as little outside influence as possible. In the autosensitization phenomena, such as is frequently seen in association with the chronic stasis syndrome, only minimal supportive—not necessarily suppressive—doses of steroid seem to serve the patient's best interests. In other conditions, such as psoriasis, nature's balance may be upset by injudicious steroid therapy, provoking dissemination and ultimately greater problems in management. It is a temptation to prescribe steroids for the forlorn psoriasis patient in hope that "something" will help. Yet, in trying to be gooddoers, we become meddlers in nature. In still other situations, as in acantholytic pemphigus vulgaris, deliberate and vigorous steroid therapy is imperative since little self-help is forthcoming on the part of the body.

Hence, it becomes obvious that the responsibility of steroid prescription requires prerequisites of knowledge, experience, good judgment, and common sense. Maxims of management do not always hold, and cases must be individualized. However, in general, restraint is urged. When the decision to use steroids is finally made, it is, as a rule, best to prescribe the smallest possible dose for the shortest possible time to control the specific situation at hand.

Obstruction of the Common Bile Duct in the Newborn by a Pancreatic Cyst

L. M. J. R. PILOT, M.B.Ch.B., J. G. GOOSELAW, M.D.,
and P. G. ISAACSON, M.B.Ch.B.

Grand Forks

CAUSES OF NEONATAL JAUNDICE have been discussed in numerous comprehensive reviews.[1,2] Among the causes of obstructive jaundice, cysts of the head of the pancreas are not mentioned. We are reporting the following case of a pancreatic cyst causing obstruction of the common bile duct, because, despite the rarity of the lesion, it is surgically treatable in the absence of complications.

CASE REPORT

The infant was delivered as a breech, at term, after a normal pregnancy. Respirations were shallow and remained poor throughout the eleven days of life. Jaundice appeared on the third day and gradually deepened until death. The infant was anuric from birth, although a urethral catheter could be passed without difficulty. No abdominal masses were palpable. Laboratory tests were normal apart from a blood urea nitrogen of 54 mg. percent on the fifth day. Serum bilirubin estimations were not done.

At autopsy the head of the pancreas was enlarged by a cyst 5 cm. in diameter over which coursed the second part of the duodenum. The gallbladder was 6 by 2 cm. and distended with bile. The common bile duct was attenuated over the pancreatic cyst, entering the duodenum at its normal location, and was probe patent throughout. On dissecting the pancreas a cyst 1 cm. in diameter containing lightly blood-stained fluid was found in the tail and the pancreatic duct could be traced from the tail of the pancreas to the region adjacent to the cyst in the head where it ended blind. On opening the duodenum a papilla was evident 0.5 cm. below the entrance of the common bile duct, but no pancreatic duct could be probed from this or from the opening of the common bile duct. The small and large bowel contained soft clay-colored feces and mucus. There were bilateral polycystic kidneys. Section of the pancreatic cyst released 40 cc. of golden brown serous fluid and revealed a smooth inner lining. On enzymatic analysis the fluid contained 40 units (Somogyi) of amylase per milliliter and 15 units of lipase per milliliter.

Microscopic examination of the pancreatic cyst showed no epithelial lining, this having apparently sloughed off. The wall consisted of concentrically arranged fibrous connective tissue in which there was a mild mononuclear infiltration, and beyond this there was a thin layer of pancreatic tissue. The cyst in the tail was deeper in the pancreas but otherwise similar. The pancreas itself showed moderate atrophy of the exocrine portion and patchy scarring. Sections of liver revealed marked bile stasis with bile plugs and minimal proliferation of small bile ducts. Several portal triads showed dilated and disorganized bile ducts arranged in the flowered pattern of polycystic disease of the liver. Microscopic examination of the kidneys showed classical polycystic disease without mesenchymal rests.

COMMENT

The histological appearance and enzymatic content leave little doubt that this was a true congenital cyst and not a pseudocyst,[3] in spite of our failure to demonstrate an epithelial lining. Large true pancreatic cysts of the newborn are rare, only 9 cases having been previously reported in infants under 2 years of age.[3] In 1 infant of 14 months, the cyst caused obstructive jaundice,[4] and we were able to find a report of 1 similar case occurring in an adult.[5] In none of these patients was the cyst associated with polycystic disease of other organs; this is not surprising since pancreatic cysts in this condition

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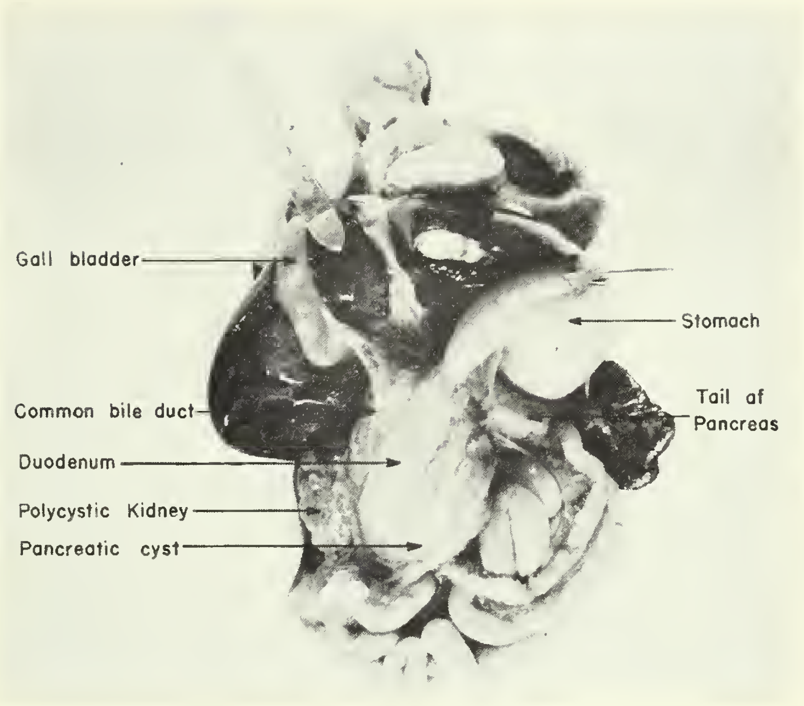

Anterior view of viscera showing large cyst in head of pancreas and attenuated common bile duct

are usually small (millimeters in diameter) and multiple.

SUMMARY

An unusual case of neonatal obstruction of the common bile duct caused by a large true pancreatic cyst is presented. In the absence of complications, this is a surgically treatable condition.

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Editor's Note: In the article "Cancer of the Colon and Rectum and Cancer Detection," by Owen H. Wangensteen, M.D., April 1964, page 110, the following credits should have been included: "This study was supported by the Damon Runyon Memorial Fund for Cancer Research and the Donald J. Cowling Fund for Surgical Research."

Payment for Physicians' Services from Crippled Children's Services' Funds

P. W. FREISE, M.D.
Bismarck, North Dakota

Crippled children's services of the North Dakota Department of Public Welfare, in conjunction with its Medical Advisory Council, wishes to point up and interpret the regulation which governs and defines the conditions under which Crippled Children's Services' funds may be used to reimburse general practitioners.

The appropriate specialist in charge of the patient, who has been authorized to provide care under Crippled Children's Services, may refer a patient back to the family physician or general practitioner for postoperative treatment or other follow-up care as supervised by the specialist. This care may be paid for by Crippled Children's Services. It is essential, however, that the specialist in charge of the patient notify Crippled Children's Services in writing, designating the nonspecialist who is to continue specific treatment or follow-up care and defining the period covered, generally not to exceed three months, in order that an authorization may be issued. Unless this office is in receipt of such communication, we would be unaware of such an arrangement and would accept no responsibility for financial reimbursement to the general practitioner.

This department is of the opinion that whenever the family physician can render some of the care under the direction of the specialist, it is of greater convenience to the patient and generally involves less distance to travel. The referral back to the family physician, however, is left to the discretion of the specialist who will continue to have responsibility for the care of the patient and who also will provide medical reports as requested. Obviously, all such arrangements would require prior authorization by Crippled Children's Services before there be an obligation for payment.

For further clarification we also should like to emphasize that the above-stated provision for financial reimbursement to the general practitioner by Crippled Children's Services is limited to follow-up care under the supervision of a specialist and does not apply to initial care prior to actual transfer to the specialist. This policy should not be construed so as to minimize the importance of such initial care, which is frequently of an emergency nature. Rather, it should be interpreted as a limitation of the Crippled Children's Services program which is neither intended nor designed to be a basic medical care program.

It is also a program policy that parents be encouraged to seek the services of their family physician in making a referral to a specialist authorized by Crippled Children's Services. This policy is especially important when the family physician has completed some work-up that need not be repeated, but it also facilitates referral back to the family physician for follow-up care. Although parents may be provided with a list of physicians authorized by Crippled Children's Services and parents make the final decision as to the specialist to treat their child, in no instance is any public welfare employee ever to select or even recommend a particular physician.

Basic responsibility for meeting the cost of medical care rests with the parents or, if parents are financially unable to meet this cost, they may apply to their county welfare board for assistance. Crippled Children's Services is a resource to the county for specialized medical care for certain specific medical conditions under specific medical facilities. Basic responsibility for assistance, however, rests with local government.

This department hopes that the specialists participating in Crippled Children's Services will keep in mind that postoperative or follow-up care can be rendered by the family physician but needs to be recommended by the specialist who will continue to have responsibility for the care of the patient. If such arrangement is made, this office needs to be so informed.

P. W. FREISE *is medical director, Crippled Children's Services, Public Welfare Board of North Dakota, Bismarck, North Dakota.*

Ray M. Amberg

GERTRUDE M. GILMAN
Minneapolis

RAY M. AMBERG has been a distinguished figure on the Minnesota hospital and health scene for many years. He is well known and highly respected in the Twin Cities, throughout the state, and nationally. Because of his work with the World Health Organization, the American Hospital Association, and the International Hospital Federation, he has many friends abroad.

Mr. Amberg was born in St. Paul, Minnesota. He attended school in Grand Rapids, Minnesota. and was graduated from the College of Pharmacy of the University of Minnesota in 1920.

Previous to his appointment as director of the University of Minnesota Hospitals in 1935, he was a pharmacist at the University of Minnesota, business manager and pharmacist of the Students' Health Service, hospital manager, and assistant director of the University of Minnesota Hospitals. Since 1947 he has been professor of Hospital Administration in the School of Public Health. His leadership in hospital circles has been manifested by membership and activity in local and state organizations. He was a member of the Minneapolis Hospital Council and chairman of the committee for its reorganization into the Association of Twin City Hospitals and later into the Twin City Regional Hospital Council.

He served as president of the Minnesota Hospital Association in 1940 and as chairman of its Committee on Government Relations for many years. From 1952 to 1956 he was president of the Minnesota Tuberculosis and Health Association, having previously served as a member of the Executive Committee and as chairman of its Council on Government Relations. Other state committees on which Mr. Amberg has served as chairman or has taken an active part include the Minnesota State Planning and Construction Committee (1942-1945), the Governor's Committee on the Handicapped (1944-1946), the Advisory Committee on Nursing (1938-1949), and the State Sub-committee on Aid to Nursing Education. The law licensing hospitals and nursing homes was initiated by him in 1941 and was subsequently passed by the legislature. His liaison work with the Minnesota Legislature has been legendary over the years.

At present Mr. Amberg is chairman of the Minnesota State Advisory Council on Hospital Construction (Hill-Burton). He is also a member of two State Board of Health advisory boards, one on the Hospital Licensing Law and the other on the Registration of Hospital Administrators.

In 1951 he was the recipient of the Gulick Award of the Campfire Girls for service to young women of America, as well as being honored at the annual Newman Club recognition banquet as the outstanding faculty member of the year. The Minneapolis Chamber of Commerce chose him in 1953 to receive the Francis E. Harrington Award for outstanding achievement in the public

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GERTRUDE M. GILMAN *is senior associate director of the University of Minnesota Hospitals.*

health field. In 1958 he was honored by the Minnesota Hospital Association. The citation he was given reads as follows:

> In friendly appreciation of all the things that have been done for thirty-five years by Ray M. Amberg. In recognition of his outstanding achievements in the fields of hospital administration, public health, and improved licensing laws, not only in his highly respected position as Director of the University of Minnesota Hospitals, but as an honored and esteemed state and national leader in his profession. Presented by his many friends upon the occasion of his 1958-59 Presidency of the American Hospital Association on this seventh day of November, nineteen hundred fifty-eight.

Another significant honor was the Distinguished Service Award of the Kiwanis Club presented to him in 1962 for his "contribution to underprivileged children."

Mr. Amberg has also been prominent nationally as a trustee of the American Hospital Association, a member of its House of Delegates, its Council on Professional Practice, and its Council on Government Relations. As president-elect in 1958, he was chairman of the Board of Trustees, as past-president, chairman of the House of Delegates. Qualifications for the presidency of this national organization include "an outstanding career in hospital administration, diligent service to the Association, and demonstration of leadership in state and regional associations," qualifications all possessed by Mr. Amberg. Last year he was a chairman in the Committee on International Relations and chairman of the Nominating Committee. At present he is a member of the Code of Ethics Committee, a joint committee of the American Hospital Association and the American College of Hospital Administrators, and a delegate to the National Health Council.

During his year as president of the American Hospital Association, he made monthly editorial contributions to the publication, *Hospitals.* His travels included a trip to Edinburgh, Scotland, as a representative of AHA to the 11th International Hospital Congress of the International Hospital Federation and a trip to South America.

While the American Hospital Association with its many activities is devoted primarily to the improvement of patient care through the development of hospitals as institutions, an allied organization, the American College of Hospital Administrators, aims at the same goal through raising the standards of hospital administration. Mr. Amberg, a fellow in the ACHA, has participated actively in its work. He was vice-president in 1947-48, a regent for several terms, and a member of the Executive and Budget committees. This college, organized in 1932, started the profession of hospital administration and gave impetus to the establishment of university courses. Under Mr. Amberg's leadership, the Minnesota course was started in 1946. He is at present a member of the Administrative Committee of the Congress on Administration of the ACHA.

In pharmaceutical circles, Mr. Amberg holds life membership in the Minnesota State Pharmaceutical Association. He is also a member of the American Pharmacy Association and an alumnus of Phi Delta Chi, a pharmacy fraternity.

Mr. Amberg's keen and devoted interest in the health field is shared by his family. His daughter, Mary, received a baccalaureate degree in nursing from the University of Minnesota School of Nursing and his son, John, the degree of doctor of medicine from the University of Minnesota. Mrs. Amberg is active in auxiliary work. She is also a sponsor of Sigma Theta Tau, the nursing scholarship society; a sponsor of Alpha Epsilon Iota, the women medical students' sorority; a sponsor of the Wives' Club of the students in hospital administration; and a gracious companion and guest at innumerable functions.

Mr. Amberg has given his counsel to the field of nursing, both locally and nationally. The nursing staff, including students, are pleased when he visits their stations. He pauses frequently to converse with them about their work, their activities, and their patients.

Two special honors were bestowed upon Mr. Amberg at a dinner on March 27, 1963. One was the Distinguished Service Award of the Minnesota Medical Foundation and the other, the Distinguished Director Award by the Board of Regents of the University. The citation of the medical foundation included a $10,000 cash award. The past recipients of this award have been Dr. Maurice B. Visscher, Dr. O. H. Wangensteen, and Dr. Cecil Watson of the medical school faculty. Mr. Amberg was honored for "exceptional devotion to the ongoing welfare of the University Hospitals, the College of Medical Sciences and the people of Minnesota." The Distinguished Director Citation presented to him by President O. Meredith Wilson reads as follows:

> Raymond Michael Amberg recipient of the Distinguished Service Award of the Minnesota Medical Foundation is hereby designated Distinguished Service Director by the University of Minnesota in grateful recognition of his outstanding qualities as Hospital Director, teacher, and humanitarian.

Associates of Mr. Amberg have graciously contributed to this sketch, giving the following comments on Mr. Amberg's contributions to the health and hospital fields and to the University.

Kenneth J. Holmquist, Superintendent, Bethesda Lutheran Hospital, St. Paul

In writing of Ray Amberg's contribution to the professional field of hospital administration in Minnesota, one could prepare a very impressive list of positions and honors that have come to him during the past forty years, but this would be inadequate to describe the unique role of a man who for many years has earned the distinction as "Mr. Hospital" of Minnesota.

Honors and positions have been earned and they are many. Regent for this area in the American College of Hospital Administrators for a period of eighteen years, the recipient of the Harrington Public Health Award, delegate to the World Health Organization in 1958, President of Minnesota Tuberculosis Association, and President of the American Hospital Association are but some of the honors that have come to Mr. Amberg. The list could be much longer.

Impressive and distinctive as these recognitions are, they don't quite describe Mr. Amberg, who has been the instrument for good in all areas of public health, the spokesman for quality care in all hospitals of Minnesota, the counselor to the profession with an unaltered course to improve and upgrade; he has been the source of information and recommendations for legislative and community planning with a sense of integrity that has built confidence in what he says. These are the attributes that have earned for Mr. Amberg the respect and affection of those that are served and his colleagues in Minnesota.

Edwin L. Crosby, Director, American Hospital Association, Chicago

Ray Amberg has been extremely active in the American Hospital Association, serving it in many capacities: as president in 1958-59, as a trustee, as a member of the House of Delegates, and as a member of councils and committees.

Through this participation, he has contributed immeasurably to the improvement of hospital care in this country. Always expressing his views with gentleness and tact, Ray has consistently stood for what he believes to be best for all hospitals—often in the face of strong opposition. Over the years, his positions have frequently proved themselves.

Ray's ability to perceive a problem, explain it, and then help solve it has been invaluable to the association. In fact, the American Hospital Association would not be what it is today if Ray Amberg had not worked so diligently for many years.

Harold S. Diehl, Senior vice-president for Research and Medical Affairs, American Cancer Society

Forty years ago I had the good fortune to make the acquaintance of a young man who has been an invaluable colleague and an intimate friend ever since. The young man was Ray Amberg; the occasion was his employment as the pharmacist of the Students' Health Service on a part-time basis. At the time, Ray was a senior in the University's School of Business Administration, and I was the newly appointed Director of the infant Students' Health Service. Ray had already been graduated from the College of Pharmacy but decided that he wanted a broader base upon which to build his professional career.

At the Health Service Ray not only developed a good pharmacy but became interested in and made valuable contributions to all aspects of the Health Service activities. As a result, when he finished his work in Business Administration, he decided to accept my modest offer of a full-time position as business manager and pharmacist of the Health Service instead of the much more lucrative positions which were available to him in commercial fields of pharmacy.

Shortly after this Ray made another decision that not only was wise but also critical to his long and distinguished career. That was to marry Margaret McHugh, then a secretary in the State Department of Health. Margaret has not only been a wonderful wife and companion for Ray but, in addition, has been interested and helpful in Ray's many and varied activities and responsibilities.

In his years with the Health Service, Ray reorganized—or to be more accurate, I should say organized—the business operations of the Health Service, learned to operate the x-ray and physical therapy equipment, and helped to plan the expansion and improvement of services and the new Health Service building, now the north wing of the University Hospitals, into which we moved in 1930.

Shortly after this, Paul Fesler, Superintendent of the University Hospitals, recognizing Ray's organizing and administrative capacity, proposed that he reorganize and manage the University Hospitals' new Outpatient Department. Inasmuch as the Health Service was functioning smoothly and was located in the same building as the Outpatient Department, we arranged for Ray to devote approximately half of his time to the Health Service and half to the management of the Outpatient Department.

Then in 1935, when I was appointed Dean of the Medical Sciences, Ray was appointed Director of the University Hospitals. We worked together in this relationship until I left the University twenty-three years later to join the staff of the American Cancer Society. During this period, the University Medical School and the University Hospitals made great progress in the scope and the quality of their programs of teaching, research, and service. New buildings were constructed, including the Mayo Memorial, the Variety Club Heart Hospital, the Lyon Research Laboratories, the Masonic Cancer Hospital, and the Veterans of Foreign Wars Cancer Research Institute; old buildings were renovated and modernized; new training programs were instituted, such as Physical Therapy, Occupational Therapy, the School of Public Health, Hospital Administration, Medical Social Service, and Psychiatric Social Work; and graduate training and research programs were greatly strengthened and expanded.

In all of these developments Ray played much more than the role of a hospital administrator. He was a central figure in the planning and the development of it all. He was imaginative, his vision was broad and his sights high, and the basis of his thinking and his action was not just the University Hospitals but what would contribute most to the overall development of the College of Medical Sciences and the work entrusted to it. Evidence of Ray's point of view is the fact that he suggested that the name over the main entrance to the hospital be The University of Minnesota Medical Center.

Another aspect of Ray's many contributions was the interest and the confidence in the work of the Medical School and the University Hospitals which he inspired in the legislature and throughout the state. Ray has always liked people and has enjoyed being helpful to them, whether these were government or University officials, politicians, members of the University faculty, students, or hospital patients. It was with this spirit and with these interests uppermost in his mind that Ray approached each and every responsibility and problem. The end result is apparent in the institution which he has served so well.

As for me, I want to say again that it has been a great privilege to have had Ray Amberg as a colleague and a friend—such associations are among life's greatest rewards.

William T. Middlebrook, Vice-president Emeritus, Business Administration, University of Minnesota, Minneapolis

When I arrived at the University of Minnesota in 1925, Ray Amberg had already graduated and was beginning his long, distinguished service to the institution. He was then business manager of the Health Service, and quite naturally our paths crossed early. From our campus associations developed the closest of personal and family relationships. For more than twenty-five years we lived just a block apart in University Grove and shared with utmost frankness those usual family problems of alternate hope and despair as our children grew up together and passed through the University. When father and mother didn't understand, Ray was the confidant my children sought. Ever since he has been their "Uncle Ray." Too often the husbands are friends and the wives are not. To my delight and Ray's also, our Margarets were as close as we were.

As I look back, I have a feeling of real satisfaction that, wherever possible, I lent encouragement and support as Ray moved from the Health Service first to the Assistant Directorship, then to the full responsibility as Director of the University Hospitals and a national and international figure in Hospital Administration, eventually reaching that pinnacle of recognition, the Presidency of the American Hospital Association. Whatever little help it may have given came back manyfold as we biennially encountered the Minnesota Legislature, for Ray battled first and foremost for the University and then only for his primary responsibility, the University Hospitals. He realized, as too few do, that if the whole is strong, so will be the parts.

Ray Amberg's contributions to the University, the University Hospitals, and to Hospital Administration generally are of encyclopedic proportions. He had a major hand in the establishment of the School for Hospital Administration; he dreamed, promoted, financed, and built numberless new hospital units; he soundly and brilliantly managed both the old and the new; and he carried the "banner of the University" through the United States and to many foreign lands. In the hope that some future discerning University historian may view these lines, let me conclude with my profound belief that Ray's unique personality, his sincere friendliness, his personal sympathy, and his astute understanding accounted for more financial support in Minnesota legislative halls than the activities of any staff member of my day.

Robert B. Howard, M.D., Dean, College of Medical Sciences, University of Minnesota, Minneapolis

As I attempted to point out in my brief remarks at the dinner honoring him last March, Ray Amberg really deserves recognition with respect to so many different areas of activity that an entire volume would be required if one were to do justice to all of them. He deserves recognition as a citizen of the nation and of the state for the many contributions he has made in the fields of hospital management and public health, as a vigorous and effective advocate of the University of Minnesota in its legislative relationships, as a benefactor of such organizations as the Minnesota Medical Foundation and the Medical Alumni Association, and in numerous other areas related to the health sciences.

But the most fitting comments I can make, it seems to me, are those that relate to Ray Amberg as Administrator of the University Hospitals. My own association with the hospital now dates back more than twenty years. I have come to know it and to love it just as I have come to know and love the man who has been its prime shaper, the man whose interests and character the hospital so accurately mirrors.

Our hospital is a large and growing institution, yet it retains its warmth and friendliness and its interest in patients as individuals in need of help. Our hospital provides the best in modern scientific medical care and surgical therapy, but it also provides generous doses of that essential wonder drug, "Tender Loving Care." All this can be traced back to the man whose hand has been on the tiller through the vital developmental years of the University Hospitals.

Ray's success—in all of his spheres of activity—can be directly related to his abiding interest in people as individuals, an interest so palpable that the recipient feels it and responds to it immediately. This is Ray Amberg's secret weapon.

Why has all of this been of such importance to us? Any hospital, of course, wants to be a good hospital. As physicians, we naturally have a concern for the welfare of our patients and want to see them well cared for. But this is doubly important in a teaching setting. In a medical school's hospital, where the environment has influence extending far beyond its patients and their families, we have the gestating place for the coming generation of physicians. It is absolutely essential that such an environment provide not only the best scientific tools available but warmth and nourishment of the soul as well. Such an environment Ray Amberg has provided for all of us who have been associated with him and with the University Hospitals.

Laurence R. Lunden, Vice-president, Business Administration, University of Minnesota, Minneapolis

Retirement inevitably occasions invited platitudes. In commenting on the retirement of Mr. Ray M. Amberg, many things of a platitudinous nature could be said, but to do so certainly would not be in keeping in this particular case. It is my privilege to comment on the career of Mr. Amberg from the viewpoint of a fiscal officer, and, in offering these comments, the affection and esteem of the entire business administration organization will be revealed.

It is given to few individuals the destiny of playing as many roles as has been accorded Mr. Amberg. Perhaps the chief role has been that of Director of University of Minnesota Hospitals. In his dedication to this professional commitment, he has been the architect of a hospital complex that compares favorably with any to be found anywhere. His tireless energy and dedication to his profession have not been limited to his own institution. What he has achieved for the University of Minnesota has been translated in many ways to state, national, and international levels.

Mr. Amberg has, as a highly knowledgeable layman, been one of the prime advocates of medicine and medical education. Many doctors whose names are known and revered throughout the nation will, I am sure, be the first to testify that they were the recipients of inestimable help from Mr. Amberg, who worked so hard in developing the facilities and creating the environment that encouraged many significant developments and discoveries.

Mr. Amberg's energy and insatiable interest in people everywhere led him into many fields not directly related to his professional activities. He became an unforgettable figure before the public as he helped to mold the image of the University of Minnesota. His sense of public relations throughout the state, particularly within the legislature, was inimitable. His integrity was such that he accounted for much of the support, financial and otherwise, that made possible the high distinction that the University of Minnesota enjoys.

While much more could be said about Mr. Amberg in terms of his professional competence and public relations, the most important attribute of all remains to be mentioned. He has always had a rare capacity for friendship, not only in terms of deserving it but in terms of bestowing it. This characteristic alone will insure him a continuing role in the affairs of the University of Minnesota and the state at large long after he sets aside his professional duties.

Mr. Amberg's interest in people, his foresight and understanding, and his leadership and sincerity are appreciated by his hospital staff as well as many others with whom he has been associated both locally and nationally. His contributions have been outstanding and he has given unstintingly of his time and energy. His influence is reflected in the accomplishments of students who have taken their residencies in Hospital Administration under him and who have risen to positions of recognition.

THYROID CARCINOMA occasionally occurs in children, more commonly in girls than boys. Tumor growth is slow, but metastasis begins early and may be widespread before diagnosis. The condition should be suspected in any child with nodular goiter or continuing cervical adenopathy. Palpable neck masses without history of infection or systemic reactions are characteristic. Metastatic lymph nodes usually are part of the tracheoesophageal or a jugular chain and are firm, movable, and not tender. Histological examination is necessary for positive diagnosis. Surgical excision is done if possible, with radioiodine, x-ray, or radium therapy as an alternative. Thyroid hormone is administered to all patients. Thyroid carcinoma was found in 49 girls and 20 boys under 15 years of age during a fifty-three-year period. All but one had palpable cervical masses not associated with preceding infection or systemic reactions. Average duration of signs and symptoms was about two years.

ALVIN B. HAYLES, M.D., L. MORRIS JOHNSON, M.D., OLIVER H. BEAHRS, M.D., and LEWIS B. WOOLNER, M.D., Mayo Clinic and Foundation, Rochester, Minn. Amer. J. Surg. 106:735-743, 1963.

INADVERTENT GASTROILEOSTOMY may not be diagnosed if the significance of previous gastric operation is overlooked. The malnutrition syndrome may resemble sprue, and the possibility of a gastrojejunocolic fistula also must be eliminated. Symptoms of inadvertent gastroileostomy usually appear within two weeks postoperatively. Characteristic manifestations are cachexia, profound malabsorption, dehydration, electrolyte imbalance, avitaminosis, and inanition. Studies of the stool almost always show steatorrhea and azotorrhea. Hypocarotenemia and hypocalcemia are common, and anemia, hypokalemia, hypoprothrombinemia, and hypoalbuminemia may be found. An intensive effort should be made to improve nutritional status before the gastroileal anastomosis is dismantled. The mortality rate was 9.6% among 24 patients with inadvertent gastroileostomy seen in twenty-six years and another 80 reported in the literature.

PASQUALE J. PALUMBO, M.D., HAROLD H. SCUDAMORE, M.D., JOHN B. GROSS, M.D., and DEWARD O. FERRIS, M.D., Mayo Clinic and Foundation, Rochester, Minn. Gastroenterology 45:505-511, 1963.

Book Reviews . . .

Review of Medical Physiology

by WILLIAM F. GANONG, *577 pp., ill., Lange Medical Publications, Los Altos, Calif., 1963. $6.50*

The intent of this most recent addition to the Lange Publication Outline Series is to provide a general review of basic physiology in a manner emphasizing application to clinical problems. The extent to which this purpose is realized varies considerably throughout the text. The book is divided in the usual manner of physiology reference texts: (1) general physiology, (2) neuromuscular physiology and function of the nervous system, (3) endocrinology and metabolism, (4) gastrointestinal physiology, (5) circulation, (6) pulmonary physiology, and (7) renal function.

The introductory section on general physiology is quite brief and superficial. Although most principles are mentioned, the necessity of recourse to a standard physiology text for detail is evident.

The discussion of neurophysiology is particularly commendable in that a distinctly difficult aspect of physiology is presented in a concise and readily understandable manner with a well-organized integration of subject matter which is clinically applicable. Following a sound presentation of basic nerve and muscle anatomy, biochemistry, and function, the progressively more complex functions of the nervous system, including special senses, are discussed.

Of perhaps greatest clinical interest is the section on endocrinology. Unfortunately, although the author makes no pretense to a thorough coverage, the preliminary discussion in this section on intermediary metabolism ranges far too wide and tends to become confusing in its generalization. The basic and applied aspects of humeral function, however, are well presented in some detail. This principally includes the metabolism and effects of the pituitary hormones, the steroids, thyroid hormone, and insulin. Of particular interest is the discussion of the interrelationships of carbohydrate metabolism and of the development and function of the reproduction system.

Pulmonary physiology, a subject which has attained considerable clinical importance, is presented in a thorough yet uncomplicated manner. The discussion includes individual chapters on lung mechanics, gas transport, and respiratory control mechanisms. A separate chapter on applied clinical problems involving anoxia, changes in carbon dioxide tension, and changes in barometric pressure contains many practical points of value.

The section on the circulation has some inconsistencies with the stated purpose of the book. The chapter on cardiac electrical activity sacrifices information regarding normal and pathological myocardial electrophysiology at the expense of a relatively prolonged clinical discussion of the electrocardiogram. The latter discussion by necessity is quite generalized and, other than use of certain aspects to illustrate basic mechanisms, would have best been left to an electrocardiography text. Contrariwise, although the discussion of basic myocardial mechanics is excellent, extension to applied problems as congestive heart failure and valvular heart disease leaves something to be desired. The content and organization of the other chapters in this section on dynamics of blood flow and mechanisms of circulatory regulation are quite good.

Finally, renal physiology is discussed in a meaningful manner under the principle subtopics of renal circulation, glomerular filtration, tubular function, and the excretion of water and the various solutes. The presentation of the clearance concept and its various applications is simple yet comprehensive. The essential aspects of the countercurrent mechanism also are presented clearly. Hydrogen ion and sodium excretion are adequately discussed and a brief reference made to the abnormalities of these processes in clinical disorders of renal function and in the use of diuretics. The concluding chapter of this section contains an accurate but limited discussion of acid-base balance which can best serve as a stimulus to more profound reading on this subject.

The book is generally well written, and although, as the author states, a knowledge of anatomy, chemistry, and biochemistry is expected, the subject matter is presented in a manner readily comprehensible to most clinicians. The illustrations are liberal and effective, and considerable reference is made to the most recent investigational concepts. The book is subject to a certain amount of overgeneralization, but it is meant to be read in entirety or by sections rather than to be used as most reference texts. An adequate reference list is provided at the end of each section for those interested in more detailed reading. The book would appear to be of greatest value to those clinicians who wish to better understand disease processes by refreshing their knowledge of basic physiology and to clinical medical students in need of review and integration of physiology into their recently acquired clinical knowledge.

HAROLD G. RICHMAN, M.D.
Minneapolis

Current Psychiatric Therapies, Vol. III, 1963

edited by JULES H. MASSERMAN, *331 pp., ill., Grune & Stratton, New York City, 1963. $9.75*

Dr. Masserman has edited an excellent, well-organized book, the 1963 edition of *Current Psychiatric Therapies.* The 30 articles selected reflect Dr. Masserman's humanistic approach to psychotherapy. The articles reveal a great concern with helping the patient, his family, and his environment both inside and outside the hospital and the clinic.

Most of the authors have considerable stature in the field of psychiatry: Professors, psychoanalysts, and psychologists from important psychiatric training centers throughout the country contribute to this volume.

The articles, almost all of them brief and well written, often are a distillation of years of thinking and clinical experience. They are likely to send the reader to the bibliographies to explore the ideas presented in greater depth. The works of Ogden Lindsley and H. H. Garner certainly fall into this category.

Clinical psychiatry frequently gives the therapist the opportunity to bring about radical changes in patients. This is dramatically illustrated by the exciting work of

(Continued on page 14A)

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(Continued from page 212)

Rosen and Walker in "Hypnotic Studies of Patients with Convulsions" and in Richard L. Cohen's application of sensory deprivation techniques to the treatment of behavior disorders in children. The utilization of family and group therapy in a variety of situations is clearly delineated by Nathan Ackerman, Hugh Millan, and others. Barbara Fish probably writes the most definitive piece in this book, "Pharmacotherapy in Children's Behavior Disorders." Jack Ewalt, Lawrence Kolb, and Harley Shands contribute thoughts worth mulling over.

Two articles were disappointing. Perhaps it is impossible to try to compress "Present Trends in Psychoanalytic Thinking" into 4 pages. Possibly Dr. Sandor Lorand was unsure of the level of his audience. C. C. Dahlberg, discussing pharmacological facilitation of psychoanalytic therapy, particularly LSD, seemed unduly optimistic about its possibilities in view of his small series of cases.

These comments may indicate the wide range of topics covered by a select group of authors and gathered together by an astute editor. This volume could have a wide appeal. The medical student who wonders whether psychiatric theory really has any practical applications and the psychiatric resident who is fearful of being flexible, warm, and imaginative in his approach to patients would be reassured by readings here. The clinical psychiatrist who has been in practice a number of years pursuing his particular interests in and ways of doing therapy can be reminded of the great variety of approaches that are available to help the emotionally disturbed. The psychiatrist who is an administrator may find new concepts of how to deal with his patient population. The psychiatrist who works in the laboratory and who has no clinical interests may be reminded that progress can be made not only by working with test tubes and animals but also by working with people.

DONALD WEXLER, M.D.
Cambridge, Mass.

Textbook of Neuroanatomy

by H. CHANDLER ELLIOTT, *542 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $11*

Professor Elliott wrote a previous textbook of neuroanatomy which first appeared in 1947 and was revised in 1954. In his latest text there have been extensive revisions and additions, although the same order of introducing the different subdivisions of the brain largely has been preserved. Included are not only the recent advances in the realm of neuroanatomy but also the later concepts of both cellular and systemic neurophysiology. Greater emphasis has been placed on variation of the extracerebral circulation, this reflecting the current advances in the diagnosis and treatment of vascular disorders of the brain. To each chapter there has been added a bibliography, including not only the source of material cited in the text but papers of special interest to the student for further study. The space devoted to the atlas at the end of the text has been doubled.

The author fails to present an introductory pattern of the gross anatomy of the nervous system at the beginning of the study. Although this should not present a problem to the resident or physician in practice, the freshman medical student might be confused by being presented a detailed study of the trees (the neurons and accessory cells of the central nervous system) without a picture of the forest (the relation of the brain to spinal cord, peripheral nerves, and remainder of the body).

Unfortunately, there are some misleading concepts presented in the diagrams and errors in the tables. Theories, such as those of neurotaxis, are at times presented as if they were facts.

The reviewer personally found this work to be inferior to the other available textbooks of neuroanatomy.

JOHN S. WARNER, M.D.
Durham, N.C.

Preventive Medicine in World War II: Vol. VI: Communicable Diseases—Malaria

prepared and published under direction of LEONARD D. HEATON, *edited by* JOHN BOYD COATES, JR. *(editor in chief),* EBBE CURTIS HOFF, *(editor for Preventive Medicine), and* PHEBE M. HOFF *(assistant editor) 642 pp., ill., Government Printing Office, Washington, D. C., 1963, $6.25*

This volume of the official history of the Medical Department of the U.S. Army in World War II continues the clinical series devoted to Preventive Medicine. Other series cover internal medicine, surgery, and miscellaneous medical efforts. Volume VI concerns malaria.

When America went to war, malaria was in its age-old position of unchallenged supremacy. For centuries man had struggled under its ravages, and armies particularly had been devastated by malaria. This pattern quickly developed anew in 1942 and 1943. On Bataan the catastrophic impact of malaria and semistarvation led to the final surrender on April 9, 1942. On Guadacanal, Solomon Islands, malaria threatened the success of the campaign from October 1942 to August 1943. In Sicily during the active fighting from July 9 to September 10, 1943, malaria hospitalized 21,482 American soldiers as contrasted to 17,375 hospitalized because of wounds inflicted by the German-Italian forces. In World War II malaria alone caused 500,000 hospital admissions.

It is trite to offset the tragic waste of war with the inevitable changes in techniques and new methods which are labeled as progress, but if any such development from World War II deserves attention, it is the impact of the new malaria control activities. During World War II advances were made in antivector malaria control technology which were probably of greater consequence than any other preventive information developed since Ross solved the mystery of malaria transmission just before the turn of the century. The development and use of synthetic antimalarial drugs and residual insecticides, born of military necessities, led in the years following the war to an enlargement of the civilian objectives of malaria control from incomplete reduction of morbidity in limited areas to total eradication of the disease from entire countries.

Perhaps the most significant development from World War II for generations to come was this release from the thralldom of malaria, growing out of the wartime experiences of millions of Americans.

The volume contains much of the well-remembered military paradox of saying so much with so few words and yet often in what seem unnecessarily unintelligible fashion. Thus, organization charts and command channels of bygone days detract from the keen interest of accounts of military campaigns and the simultaneous war of improvisation and consolidation against malaria. Yet the volume must be accurate and complete above all else if it is to achieve its objective as the official history.

(Continued on page 18A)

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(Continued from page 14A)

One searches in vain for the intimate description of one's personal recollection of malaria survey and control activities on Sicily in 1943 and 1944, nostalgic memories similar to those of thousands of middle-aged physicians today. At that time the malariologist was in an enviably ambiguous position, a staff officer with some command responsibilities. Best of all, he had transportation. Thus it was that we covered the historic island in search of larvae, visiting the aquaducts and water channels installed by ancient Greeks and Romans, as well as Segesta, Mount Etna, Marsala, and all other points of interest.

The volume contains a wealth of data on the practical experiences that led to the final successful techniques of malaria control. Brief descriptions of malarious terrain around the globe with facts about rainfall, the mosquito vectors, and important control factors provide an unique source for accurate worldwide information. Emphasis is on the preventive, public health aspects of malaria control, without great detail or lengthy discussion of individual clinical malaria diagnosis or treatment aspects of the sick patient. There are excellent photos, maps, and tabulations.

In short, this volume is a basic source of information about malaria control procedures which have profoundly changed our world. It should be in the library of anyone with any significant interest in this greatest of all communicable diseases.

D. S. FLEMING, M.D.
Minneapolis

Science and Psychoanalysis. Volume VI: Violence and War with Clinical Studies

edited by JULES H. MASSERMAN, *284 pp., ill., Grune & Stratton, Inc., New York City, 1963. $8.75*

Of major interest in this, the sixth volume of the series published by the Academy of Psychoanalysis, is the record of the Symposium on Human Violence held jointly by the Academy and the American Association for the Advancement of Science. Included are papers by such outstanding representative thinkers in their respective fields as David McK. Rioch, Arthur Waskow, and Margaret Mead, among others. The papers trace the role of violence and its derivatives in behavior as observed under laboratory conditions, as developed progressively in the phylogenetic evolution of the species, and finally as experienced and complicated by man's own adaptation to life as a social being. The latter is examined beginning at the level of individual adjustment to internal drives and internalized conflict. The discussion is then broadened to the level of group social and cultural adaptations, including those specialized forms and their functions which violence may take in society, namely, war. Finally, an effort, only partially successful, is made by Waskow to examine the manner in which the persistence of conflict and the propensity for violence within man might be met in a disarmed world. Mead introduces the "perspective of cultural history," examining those needs of man for a sense of mastery and self-trust which must continue to be met. In a world in which mankind's continued survival makes unacceptable the supreme test of mastery that has been experienced in the violence of war, she points to the need for a new ideology for man.

Dr. Jules Masserman, editor of the series, contributes a critical review of the papers and makes suggestions of his own about ways in which physicians, psychologists, and educators may contribute to the search for alternatives to violence in a world of inevitable conflicts of interest. Although the lines drawn are necessarily broad and at times oversimplified, this symposium should interest all physicians concerned with the most pressing challenge of our age—the threat of mankind's self-annihilation through nuclear war.

In addition, the volume includes research and clinical papers previously presented at the Scientific Meeting of the Academy which continue the generally high level of quality to be expected from this group. Although these sections of the volume are of primary interest to psychologists, psychiatrists, and psychoanalysts, many of the papers may prove of more interest to the general physician than he would expect.

WILSON YANDELL, M.D.
San Francisco

Modern Psychiatry: A Handbook for Believers

by FRANCIS J. BRACELAND *and* MICHAEL STOCK, *346 pp., Doubleday and Company, Garden City, New York, 1963. $4.95*

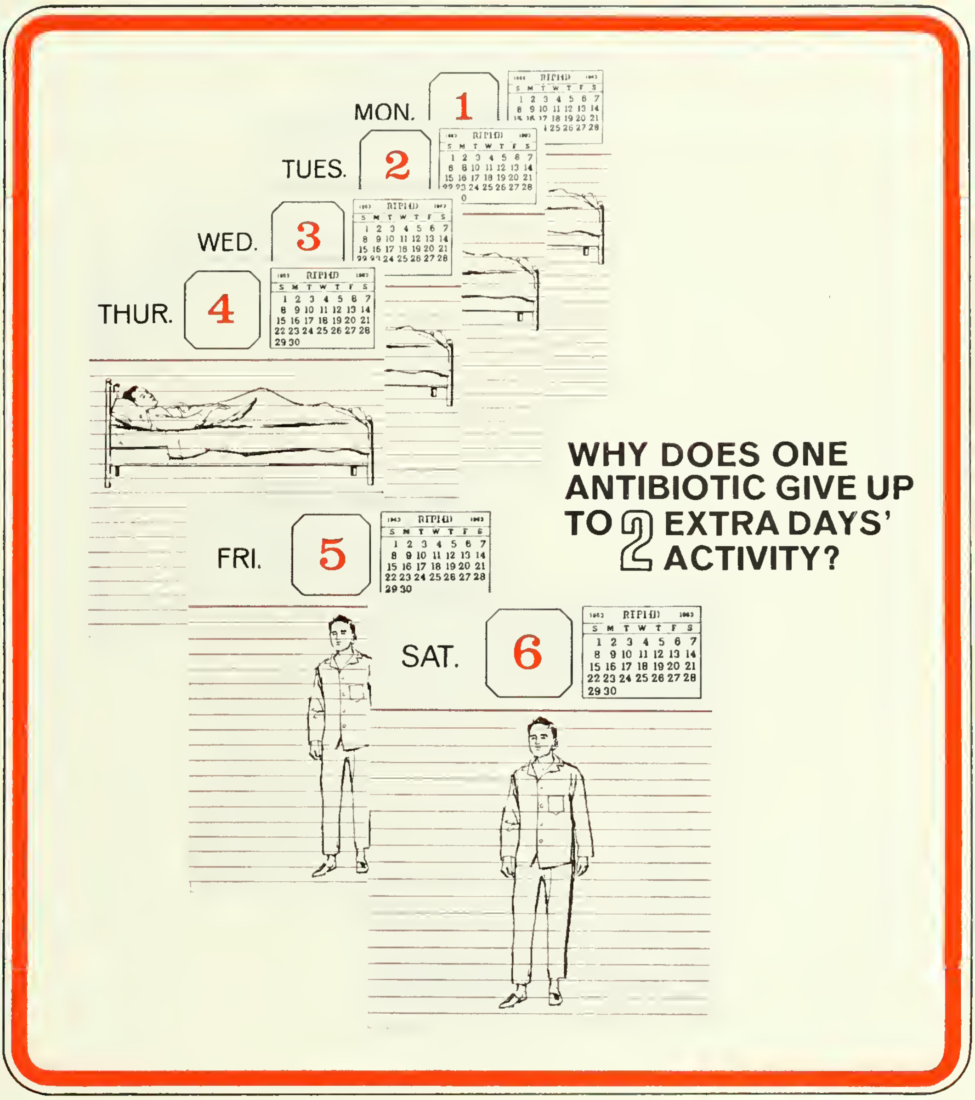
The purpose of this excellent book is to present frankly the case of psychiatry and the disturbed individuals who constitute its particular mission to the religious world. It specifically aims at the removal of the coolness and mixed suspicion of psychiatry. That this goal might be achieved is demonstrated by numerous favorable reviews in religious journals. It might have been helped by the fact that *Modern Psychiatry* was jointly written by a priest and a prominent Catholic psychiatrist.

Aside from clergymen, the nonpsychiatrist in general and the general practitioner of medicine in particular will find in this book a comprehensive and balanced picture of the work of psychiatry with "the scientific jargon pruned away." It is a general and up-to-date review where technical language has been carefully avoided without harm to the substance.

The history of psychiatry is succinctly presented from its beginning to its recent schools. As it is shown, psychiatry did not have much to offer initially except a forlorn hope and a human purpose—that people be treated decently while in the throes of mental illness. With Freud—"no single individual contributed so much to the knowledge of psychiatry"—psychiatry, so to speak, found its own anatomy and physiology. In the last decades, really potent therapeutic weapons became available in the somatic treatments and the psychic drugs. The developments that have followed *Action for Mental Health* hold much promise for the future with the emphasis on community psychiatric treatment. In this new orientation, the general practitioner is considered the key figure.

The salient facts of the more frequently encountered psychiatric conditions are considered in this book on the basis of the American Psychiatric Association Nomenclature. The theories of psychosomatic disorders provide a general understanding of the patients afflicted with such conditions. The dynamic formulations of psychoneuroses explain how symptoms of conversion, hysteria, phobia, obsession-compulsion, and depression are developed by the patients. Some emotional reactions of everyday life—anger, rage, hostility, bitterness, and jealousy, which are psychically harmful to the unfortunate possessor—remind the reader that mental pathology is the lot of every human being. As Alvarez put it in *Minds that Came Back*, "Most of us, presumably normal persons, are a mixture of sanity and insanity."

(Continued on page 20A)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(Continued from page 18A)

Braceland and Stock regard psychotherapy as the most important therapeutic tool of psychiatry. They have presented one of the best summaries that can be read on the subject. They have not forgotten the somatic therapies: electric shock, insulin shock, and even psychosurgery. In spite of the advent of the psychic drugs they recommend the use of electric shock, especially in the case of depression with suicidal tendencies. They have much wisdom to offer in regard to the administration of these drugs, including the advice that it be under most careful medical supervision.

All in all, *Modern Psychiatry* is to be recommended to the general practitioner as an excellent introduction to the field of psychiatry.

BERCHMANS RIOUX, M.D.
Minot

Spectrophotometric Analysis of Drugs Including Atlas of Spectra

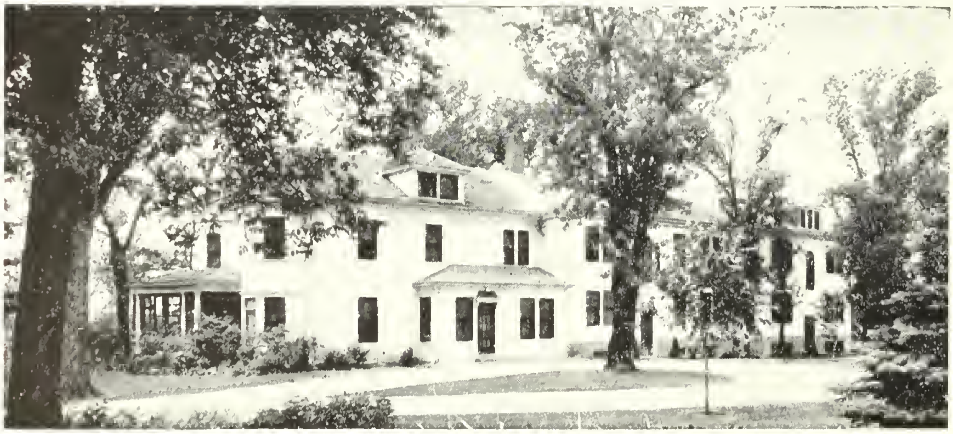
by IRVING SUNSHINE *and* S. R. GERBER, *235 pp., ill., Charles C Thomas, Springfield, Ill., 1963. $10.50*

This important technical volume has been well prepared. Its authors are, respectively, the toxicologist of the Cuyahoga County Coroner's Office and Assistant Professor of Toxicology at Western Reserve Medical School and the coroner of Cuyahoga County and codirector of the Law-Medicine Center of the Western Reserve University, Cleveland, Ohio. They point out that absorption spectrophotometry has now come of age in toxicological analyses and that infrared will be increasingly important because of adequate low-cost instruments.

Many laboratories are now acquiring recording spectrophotometers, and their usefulness may be enhanced by easily available absorption data and curves. The ultraviolet and infrared absorption data on 150 common drugs are offered in this volume. The group does not include narcotics. It does include the infrared identification tests indicated in USP XVI. A supplement is in progress as additional data are accumulating.

The volume describes an acceptable method for isolating toxic substances from blood in adequate amounts for spectrophotometric analysis. This is based on solvent extractions of blood whose proteins are precipitated by zinc salts in alkaline medium. The ultraviolet absorption characteristics of such extracts can be obtained, whereupon the material may be reextracted, added to potassium bromide, and pressed into pellets. Infrared absorption analyses of these pellets are then possible. The extraction procedure can be applied to blood, urine, or stomach contents without using the time-consuming classical Stas-Otto technique. Screening procedures for ultraviolet spectrophotometry are given in detail, and further information is given on the method for infrared spectrophotometric techniques.

Ultraviolet absorption spectra are charted for a group of drugs from acenocoumarin to zoxazolamine. Infrared absorption spectra charts are given for the same and some additional drugs. No characteristic ultraviolet absorption peaks could be obtained for such drugs as sedormid, carbromal, diphenylhydantoin sodium, pentylenetetrazol, scopolamine hydrobromide, bemegride, or carisoprodol.



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The application of infrared analysis to toxicology is just beginning, and this volume is the best available source of information on the specific spectrophotometric analyses of drugs by this method. The volume should be useful to toxicologists, criminologists, and chemists. It is of no particular interest to physicians, except to indicate that it is becoming increasingly possible to identify unknown chemical compounds in biological fluids with relative exactness and ease.

CHAUNCEY D. LEAKE
San Francisco

Textbook of Surgery

by WARREN H. COLE *and* ROBERT M. ZOLLINGER, *8th ed., 1,263 pp., ill., Appleton-Century-Crofts, New York, 1963. $18.95*

The eighth edition of Cole and Zollingers' *Textbook of Surgery* is a compact book with small but easily readable print. There are 1,240 pages in this book with 2 columns of print on each page. Topic headings are easy to see with bold print. Illustrations are plentiful and well done. They are mostly black and white, although colored illustrations are used sparingly to emphasize selected skin conditions. The subject matter within the chapters is well organized, with liberal use of headings and subheadings. This aids the reader in rapidly locating a specific topic.

This is a textbook of general surgery, and although the specialties of urology, gynecology, orthopedics, and neurosurgery are thoroughly discussed, the main emphasis of this text is on general surgery. This is not a technique book, and little emphasis is placed on surgical technique. The chapter on amputations is an exception to this. This is an excellent chapter covering all phases of amputation including rehabilitation.

A separate chapter is devoted to pediatric surgery. This is unique in that some texts include their subjects along with the various systems. This emphasis of pediatric surgery is proper, and this is a well-written, cleverly illustrated chapter.

The chapter on military surgery summarizes and reemphasizes some of the valuable lessons learned about trauma and infection in World War II. This is in addition to the discussion of wounds to which an entire chapter has been devoted.

An excellent chapter has been included on ulcers and gangrene. This is carefully illustrated with both everyday and unusual problems related to this subject.

The problem of diabetes mellitus, as related to surgery, is discussed especially well. This is a most valuable discussion emphasizing the relation of arterial disease and diabetes. Nonoperative care is carefully discussed. The chapter on acquired cardiovascular disease is detailed, with considerable emphasis on bypass techniques. Carotid and renal artery insufficiency are discussed. The authors of this chapter use the technique of side-by-side photos of arteriograms and artist illustrations to illustrate the pathology and method of reconstruction. The last chapter in the text is a discussion on medical ethics and conduct. This is valuable reading for any physician.

This book is complete. There are no major omissions that the reviewer noted. It is to be recommended for

(Continued on page 22A)

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(Continued from page 21A)

students and residents and also general practitioners, who will find it a practical reference text because of its careful organization and emphasis on daily surgical problems.

G. E. TOLSTEDT, M.D.
Bismarck

Human Aging: A Biological and Behavioral Study

edited by JAMES E. BIRREN, ROBERT N. BUTLER, SAMUEL W. GREENHOUSE, LOUIS SOKOLOFF, *and* MARIAN R. YARROW, *328 pp., ill., U.S. Government Printing Office, Washington, D. C., 1963. $3*

This is an important volume as it contributes greatly to the knowledge of geriatrics. It is the summary of some 22 investigations directed toward the problem of aging. It recognized that many of the aged are healthy community individuals who are well-adapted and well-adjusted as contrasted with the aged who are ill. This investigation has brought together all the talents, disciplines, and skills of those interested in the problem of aging. The contributors to this volume are recognized authorities.

This volume does not answer the problem of the aged. It does, however, give to those who are interested a better understanding of the problem of aging in the group that was selected to be investigated. By its selection of individuals, it remains a monumental contribution to the problem of aging.

JOHN F. BRIGGS, M.D.
St. Paul

The Electrocardiogram and Chest X-Ray in Diseases of the Heart

by ARTHUR M. MASTER, RICHARD P. LASSER, ISADORE ROSENFELD, *and* EPHRAIM DONOSO, *565 pp., ill., Lea & Febiger, Philadelphia, 1963. $21*

This book was obviously not intended to be a textbook of clinical cardiology, electrocardiography, or cardiovascular roentgenology but rather a type of reference volume in which aspects of all 3 are combined. This being the case, one would hardly use this type of book for a detailed study of the electrocardiogram or roentgenogram nor for a comprehensive review of the clinical syndromes associated with various cardiovascular diseases or abnormalities. It certainly will, however, be useful to the clinician who sees cardiac patients in his day-to-day practice. The book presents the usual electrocardiographic and x-ray changes associated with almost every type of heart disease so these can be "looked up" when the clinician knows or suspects the correct diagnosis. If he is not certain of the exact disease state present and suspects several possible conditions in his differential diagnosis, a review of the appropriate chapters should be most helpful to him in "pigeonholing" the case.

Obviously the clinical, electrocardiographic, and radiological patterns are not always typical and precisely diagnostic, and the authors emphasize this and point up the variations one sees. In this type of book, therefore, the vast amount of clinical material seen over the years by the senior author provides a background of inestimable value. This is apparent in the case reviews which illustrate each section and chapter of the book.

The first 100 pages or so concern themselves with some general discussions of the teleoroentgenogram and electrocardiogram and how they are influenced by age, body build, and respiration. A chapter on the general principles of cardiac enlargement completes the introductory part of the book. Rheumatic, hypertensive, and ischemic heart disease follow in that order, after which there is a chapter describing changes in the heart associated with pulmonary disease and deformities of the chest. A large section is devoted to congenital malformations, and brief chapters are given to pericardial diseases, syphilitic heart disease, cardiac changes associated with thyroid disorders, cardiac tumors, and several of the cardiomyopathies.

The book is profusely and magnificently illustrated, printed clearly and in easily readable form, and contains an extensive bibliography. It should be well received by any physician who sees clinical patients with all types of cardiovascular disease.

MILTON M. HURWITZ, M.D.
St. Paul

Disability Evaluation and Principles of Treatment of Compensable Injuries

by EARL D. MCBRIDE, *6th ed., 573 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $22*

In his first edition, Dr. McBride emphasized the need to correlate the physiological and mechanical results of injury with the restoration of function. This still remains the basis of proper treatment. Time has proved the wisdom of his concept. The sixth edition reflects the true value of his contribution to this specialty of medicine. In this edition, various problems in analyzing the disabling features of injury are reconsidered. Some may question his analysis or suggest a different approach, but nonetheless, this volume is an important contribution to an increasingly important area of medicine.

The publishers have carried out their responsibilities excellently.

JOHN F. BRIGGS, M.D.
St. Paul

Synopsis of Ear, Nose, and Throat Diseases

by ROBERT E. RYAN, WILLIAM C. THORNELL, *and* HANS VON LEDEN, *2nd ed., 425 pp., ill., C. V. Mosby Co., St. Louis, 1963. $7.50*

This second edition of *Synopsis of Ear, Nose, and Throat Diseases,* like the first edition, supplies the busy practitioner and the student with a handy fingertip reference allowing for quick review of applied anatomy and physiology as well as good diagnostic and therapeutic information pertaining to the common conditions and diseases of the ear, nose, and throat.

The format is excellent in that each section is divided into brief, concise chapters with a short outline summary at the end of each. The 18 chapters on the ear, for example, include 1 chapter on the newest techniques in microsurgery on the ear and another chapter on sensorineural deafness (formerly referred to as perceptive deafness) and some of the newer concepts and therapeutic triumphs of this baffling disease. These include the use of Lipoflavonoid, introduced by Dr. Henry Williams in August 1962. (It was interesting to note that this book was dedicated to Dr. Williams, a great teacher indeed.)

The second section of the *Synopsis* contains 19 chapters on the nose and paranasal sinuses and devotes 1 of

(Continued on page 24A)

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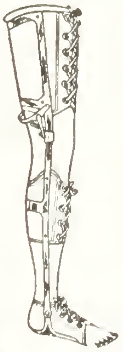

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BOOK REVIEWS

(Continued from page 23A)

these chapters to the most recent diagnostic and therapeutic management of nasal allergy.

The third section of the book deals with the pharynx in 8 well-defined and concise chapters, including a most informative chapter on pharyngeal manifestations of systemic disease.

The fourth and last section of the *Synopsis* deals with the larynx in 13 brief chapters, including a practical approach to voice rehabilitation, the diagnosis and treatment of psychosomatic disturbances, and, like the pharynx, a chapter on the laryngeal manifestations of systemic disease.

The final chapter of the *Synopsis* concerns itself with tracheotomy—the indications for, the surgical techniques of, and the postoperative management of. This is a very practical subject of almost mandatory interest to everyone close to medicine. In my opinion, the subject is handled extremely well, better than in most other texts I have read on the subject of tracheotomy.

In general, the book is well illustrated where illustration is helpful to a better understanding of the topic. On the basis of my review, I would recommend the purchase of the book by the student and the physician.

GRAHAM G. SMITH, M.D.
Minneapolis

NEW BOOKS RECEIVED

Books and publications received will be listed here periodically, and such mention must be regarded as sufficient return for the courtesy of the sender. Books of special interest to our readers will be reviewed as space permits.

Safeguarding Motherhood by SOL T. DE LEE, 5th ed., 164 pp., ill., J. B. Lippincott Co., Philadelphia, 1962. $2.25 (Available only to medical profession by direct subscription or through Lippincott sales representatives. Special quantity prices.)

Ciba Foundation Study Group No. 14 "Intestinal Biopsy" edited by G. E. W. WOLSTENHOLME and MARGARET P. CAMERON, 120 pp., ill., Little, Brown & Co., Boston, 1962. $2.95

Food Values of Portions Commonly Used revised by CHARLES FREDERICK CHURCH and HELEN NICHOLS CHURCH, 9th ed., 130 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $4.50

Ultrastructure and Metabolism of the Nervous System edited by SAUL R. KOREY, ALFRED POPE, and ELI ROBINS, 456 pp., ill., Williams & Wilkins Co., Baltimore, 1962. $17

The Thyroid and Its Diseases edited by A. STUART MASON, 162 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $6

A Short Textbook of Medicine by J. C. HOUSTON, C. L. JOINER, and J. R. TROUNCE, 564 pp., D. Van Nostrand Co., Inc., Princeton, New Jersey, 1962. Hard cover: $5.75. Paper Cover: $4.50

News Briefs . . .

North Dakota

A NEW $140,000 Medical Arts Center in Mandan opened recently, opposite the new Mandan Hospital. The first of 5 units completed in the center includes a laboratory, emergency room, 2 examination rooms, and a waiting room. Four similar units are to be finished shortly. Dr. Shelagh Milligan and Dr. Thomas F. Gibson were practicing in the new center on opening day.

* * * *

DR. DEMOSTHENES HILIOPOULOS, a native of Greece now practicing in Canada, has announced his intention to establish private practice in Westhope. He will be the community's first doctor since the death of Dr. E. E. Greene last November. Dr. Hiliopoulos received his medical degree from the University of Thessaloniki in Greece and interned at Holyoke Hospital, Holyoke, Mass. He served pediatric residencies at Mobile General Hospital, Mobile, Ala., and Robert Packer Hospital, Sayre, Pa. The 40-year-old doctor also took further training at Scott and White Memorial Hospital, Temple, Texas, and General Hospital, Regina, Sask.

* * * *

DR. T. H. HARWOOD, dean of the University of North Dakota Medical School, Grand Forks, has succeeded Dr. Keith G. Vandergon of Grand Forks as president of the North Dakota Public Health Association.

* * * *

DR. DAVID A. RINN has joined the Palmer Clinic in Cando as partner of Dr. G. H. Hilts. A former Minot resident, Dr. Rinn attended the University of North Dakota and completed his medical school work at Bowman Gray School of Medicine, Winston-Salem, N.C. He served an internship and a year of surgical residency at Baptist Hospital, Nashville, Tenn.

Minnesota

DR. ALVIN C. PETERSON of Mora resumed his practice of medicine and surgery April 2.

* * * *

WILLIAM J. NORBERG, JR., a University of Minnesota Medical School freshman from Barnum, has received the 1963-64 rural medical scholarship awarded annually by the Minnesota State Medical Association. He will receive $1,000 a year for the four years of medical school; he then will practice at least five years in a rural Minnesota community needing a physician. The thirteenth annual award was announced by Dr. Charles G. Sheppard of Hutchinson, chairman of the scholarship and loan committee.

* * * *

DR. KENNETH A. OSTERBERG, 32, a University of Minnesota Medical School instructor in pathology, has received a $19,341 award as one of the 15 outstanding young instructors in the country. The award, announced at a meeting of the Federation of American Societies for Experimental Biology, was made by Lederle Laboratories of New York City. Dr. Osterberg is a native of Minne-

(Continued on page 26A)

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FREE PARKING

(Continued from page 25A)

apolis, earned his medical degree at the University of Minnesota in 1955, interned at Minneapolis General Hospital, and was a U.S. Public Health Service special fellow in pathology. In addition to teaching, he is studying the production of scar tissue in the brain.

* * * *

EIGHT FACULTY MEMBERS and 3 students from the University of Minnesota Medical School have been awarded 1964 reseach grants from the Minnesota Medical Foundation, according to Dr. Corrin H. Hodgson of Rochester, foundation president. The awards are made possible by gifts to the foundation and by income from permanent endowment funds established in 1961 by a $200,000 bequest of the late Arvid Olson, New Town, N.D. Faculty recipients include: Dr. D. Scott Clark, surgery, $700; Joanne Finstad, pediatrics, $1,000; Lorraine M. Gonyea, laboratory medicine, $750; Dr. Roswith Lade, pediatrics, $2,000; James C. Pierce, surgery, $470; Dr. Terence J. Scallen, medicine, $1,000; Dr. Seth T. Shaw, laboratory medicine, $800; and Dr. Thomas O. Swallen, laboratory medicine, $1,000. Student grants of $1,200 each were awarded to Nils Rune Forsen, sophomore; Ralph R. Grams, freshman; and Bernard L. Mirkin, senior.

* * * *

DR. S. K. MCHUTCHISON has joined the staffs of St. Johns and Mounds Park hospitals in St. Paul. He had been associated with the St. Charles Community Medical Center since its opening in 1957. At St. Charles, Dr. McHutchison was active in the American Legion, Lions Club, Chamber of Commerce, school board, and Junior Chamber of Commerce.

South Dakota

DR. ARTHUR A. LAMPERT of Rapid City has been reappointed to the council on legislative activities of the American Medical Association.

Deaths . . .

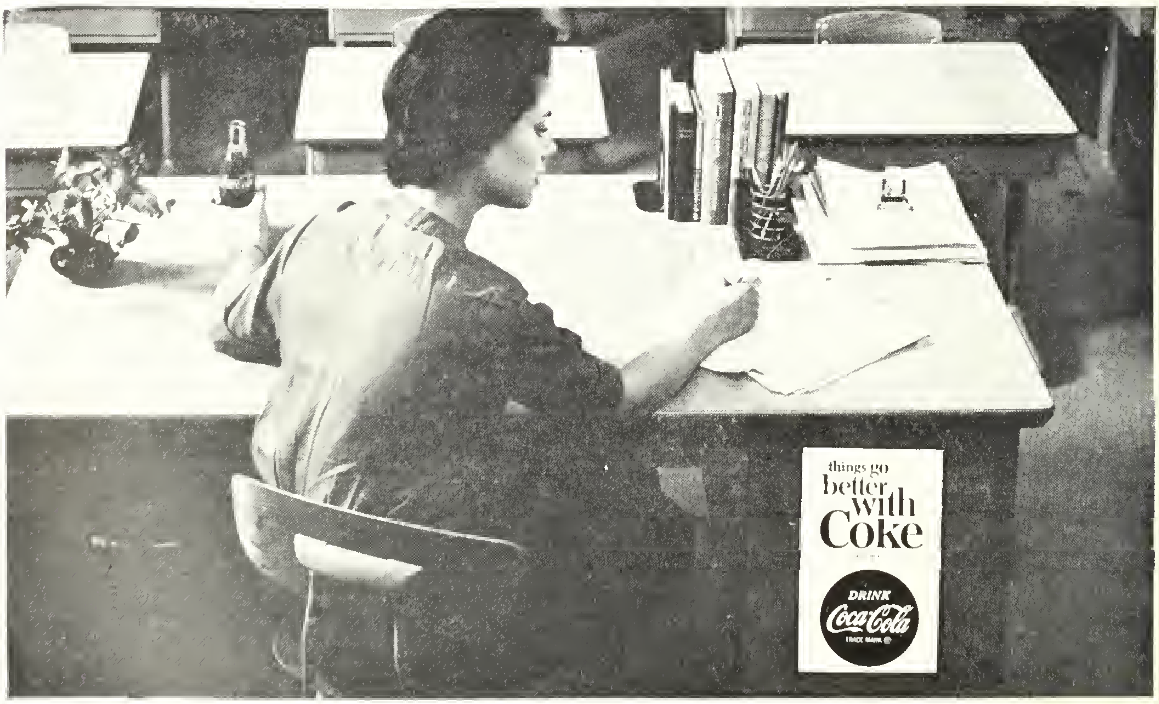
DR. CHARLES BOLSTA, a 91-year-old Ortonville, Minn., physician, died April 14. Son of the first white settlers in the area, he attended Ortonville public schools, received his medical degree from Rush Medical College, Chicago, in 1895, and returned to Ortonville to practice. Dr. Bolsta helped organize the West Central Minnesota Medical Society in 1906 and was a member of the state board of examiners from 1910 to 1916. He became a member of the American College of Surgeons in 1915. Dr. Bolsta retired in 1945 after fifty years of practice.

* * * *

DR. HENRY C. DEILY, an Emery, S.D., general practitioner, died March 20 at the age of 84 following a long illness.

* * * *

DR. BARTHOLOMEW LEAHY, 83, a St. Paul resident for 52 years, died April 5. He was born in Canada and received his medical degree from the University of Toronto Medical School in 1910. After internship at St. Joseph's Hospital, St. Paul, in 1911, Dr. Leahy was a staff member of St. Joseph's from 1919 until retirement in 1954. In 1963 he was made an honorary member of the hospital staff.



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COMING *in* August

Articles and features to be found in the next issue of THE JOURNAL-LANCET

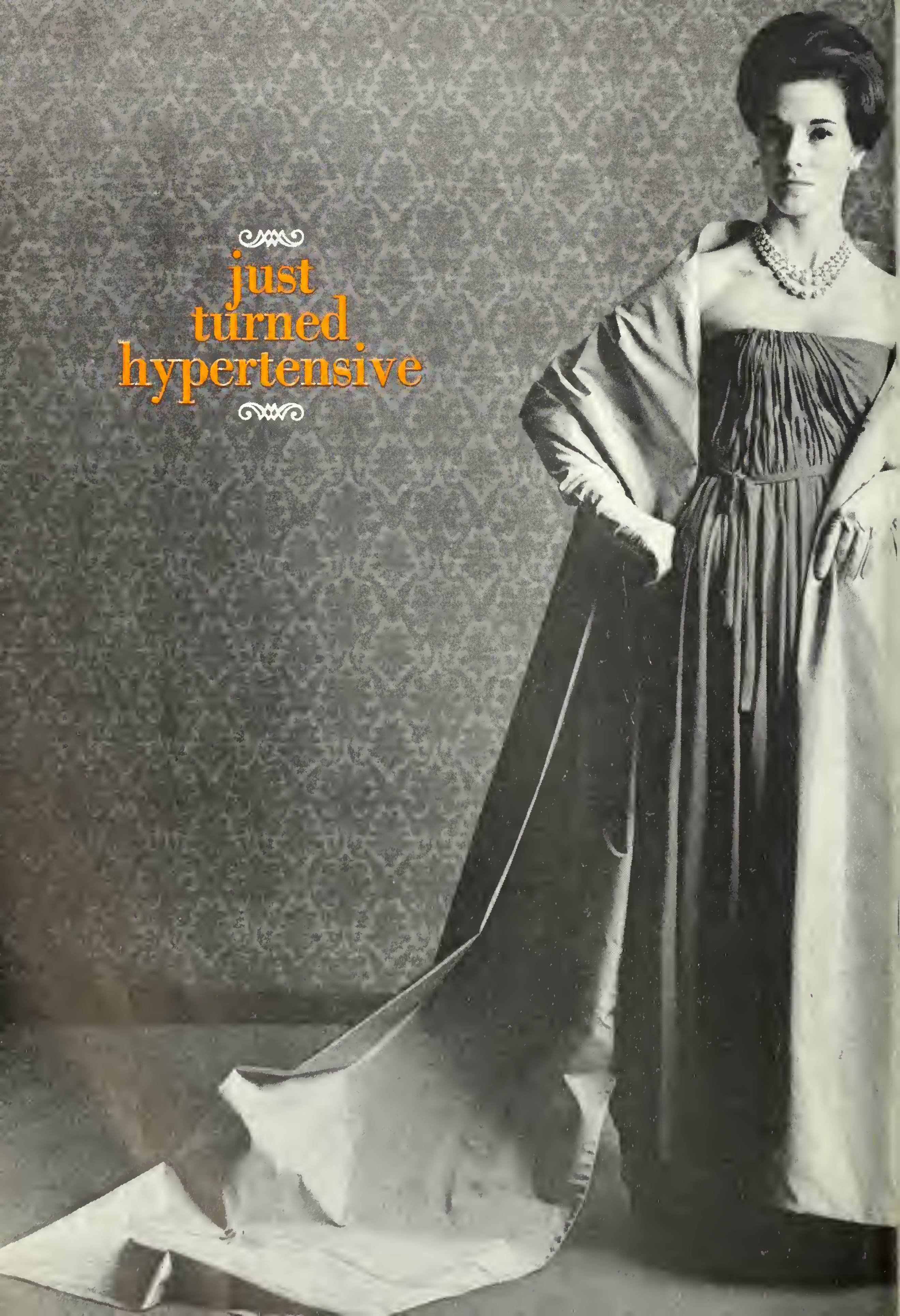
Many physicians will welcome the article by Duane W. Nagle, M.D., of Fargo, "Ear, Nose, and Throat for the General Practitioner: Part I—The Ear." The article, which is the first of a series of three, tells in an easy, chatty manner, how some of the more common ailments of the ear may be treated.

The need for such an article was brought home to Dr. Nagle early in his practice. He found that a large percentage of his patients had problems relating to the ear, nose, and throat. Yet, of all the organs, these three were the ones that he knew the least about. Only a small part of the clinical years in medical school had been devoted to problems of the ear. To make up for the limited formal training, he evolved from experience a pragmatic list of do's and don't's and many practical suggestions for the treatment of some of the more distressing disorders.

The article is intended as a refresher and an aid for the busy general practitioner who may be faced with the same problems that Dr. Nagle encountered. In it he shares what he has learned by experience.

Other papers scheduled to appear are:

- **Harry DeWitt Lees, M.D.,** by J. Arthur Myers, M.D., University of Minnesota Medical School, Minneapolis.
- **Coronary Atherosclerosis in Delhi,** by A. Malhotra, M.D., and S. Padmavati, M.R.C.P. (London), F.R.C.P. (Edin.), Lady Hardinge Medical College and Hospital, New Delhi.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Cardiovascular Chest Pain as an Emergency Situation

KENNETH M. CAMPIONE, M.D.
Chicago

A MAJOR TYPE of cardiovascular emergency is that which presents with chest pain. It is the purpose of this review to discuss the most frequent major etiologic events underlying such pain, in the light of recent experimental and clinical concepts.

CORONARY DISEASE

Inadequate coronary blood flow may result in myocardial ischemia and create a situation of an emergency nature through the production of 3 clinical pain syndromes: (1) Angina pectoris—characterized by paroxysmal attacks of a distinctive pain or oppression usually situated retrosternally with rather constant relationship to effort,[1] (2) intermediate coronary—chest pain intermediate in duration and intensity between angina pectoris and acute myocardial infarction,[2] and (3) Acute myocardial infarction—intractable chest pain often associated with fall in arterial blood pressure, fever, and prostration.

Myocardial ischemia, the underlying factor for each of the above-mentioned pain syndromes may be influenced by 3 factors:[3]

1. Vessel factor—an obliterative process due to narrowing of the coronary arteries by atherosclerosis. While such narrowing is proceeding, collateral circulation is developing. However, in the presence of symptoms such collateral circulation may be considered to be as yet inadequate.

2. Cardiac muscle—factor including: normal work requirements by normal size heart muscle, increased demand for blood by a large myocardium due to valvular disease or hypertension, or increased myocardial tissue demand as in thyrotoxicosis, tachycardia, fever, or unusual physical work.

3. Blood factor—influenced by anemia, anoxia, and blood pressure.

Hurst and Schlant[3] state: "When the blood factors are normal and the only muscle factors are those demanded by stresses that are within physiological limits, the problem becomes a vessel problem—In the absence of anemia, anoxia, hypotension, ventricular hypertrophy, thyrotoxicosis and tachycardia, the development of signs and symptoms of ischemic heart disease depend on the rate and progression of the obliterative process (in speed and extent) in the coronary arteries on the one hand, and the development of collateral circulation on the other hand."

Symptomatology. Heberden's (1768) classical description of angina pectoris has been given proper tribute by each medical generation. "They who are afflicted with it are seized while they are walking (more especially if it be up hill and soon after eating) with a painful and most disagreeable sensation in the breast, which seems as if it would extinguish life if it were to increase or continue; but the moment they stand

---

KENNETH M. CAMPIONE *is associate in medicine at Northwestern University Medical School.*

still all this uneasiness vanishes."[4] Especially to be emphasized is a sense of strangling and anxiety. Often terms such as tightness, sensation of weight, squeezing, constriction of a vise-like type, choking, fullness, or expanding are used.

The intermediate coronary syndrome includes "angina-like pain," "infarction-like pain," or "anomalous pain" such as precordial tenderness occurring in most instances in the center of the chest and often radiating to the arms and shoulders. In general, pain in this group may be expected to be somewhat more intense and of longer duration than in the anginal group and somewhat less intense and less associated with general prostration than in the acute myocardial infarction group, but great variation is to be expected.

In an acute myocardial infarction, although the pain is characteristically described as being pressure or terrible crushing or squeezing sensations, "it must be borne in mind that distress in some is not very marked, in fact there are a few who are not prevented from carrying on their activities throughout the attack. The duration of the pain is also variable, lasting from an hour or two to several days. In some it comes in waves, each lasting for about 15 minutes until it becomes continuous. Generally after six or twelve hours the severity has abated although milder soreness persists."[5]

Incidents and grouping of associated symptoms such as cough, dyspnea, sweating, vomiting, pallor, and so on, as well as indication of the frequency of different types of chest pain in myocardial infarction, have been dealt with well by other authors.[6]

Laboratory findings. In angina pectoris usual indexes such as white cell count and sedimentation rate are normal at time of attack and interval periods. Thirteen of 26 patients admitted to the hospital with chest pain and showing nontypical clinical or nondiagnostic electrocardiographic evidence of infarction or both showed significant serum enzyme levels (SGO-T—serum glutamic oxalopyruvic transaminase, MDH—malic dehydrogenase, or LDH—lactic dehydrogenase), permitting the presumption that detectable "myonecrosis" accompanied the episodes diagnosed as "angina" in one-half of the patients in this series.[7] In cases in which clinical and SGO-T data have been in dispute, autopsy has supported the SGO-T diagnosis of actual infarction.[8] Those patients with muscle necrosis would be best categorized as having the intermediate coronary syndrome.

In 251 studied patients with the intermediate coronary syndrome, leukocytosis was present in 72%; sedimentation rate elevation was present in 23%. In 52 patients in whom the SGO-T value was estimated, 33 were below 40 and the remainder were between 40 and 75.[2]

In patients with acute myocardial infarction, white blood cell count usually is elevated and detected on the second or third day in many series; elevated sedimentation rate usually is noted on second or third day and persists for several weeks in several series. SGO-T titres usually rise from 70 to 600 units in twelve hours to six days. Positive C-reactive protein is usually detected.[1]

X-ray findings. A normal-sized heart is usually found in angina pectoris, and variable degrees of transverse diameter increase are seen in the intermediate coronary syndrome. Enlarged transverse diameter findings in 83% of the first attack and 85% of the second attack are seen with acute myocardial infarction.

Electrocardiographic findings. In angina pectoris diagnosis as stressed above is a clinical one. However, in questionable cases, electrocardiographic changes produced by exercise, usually of the 2-step Masters type, is helpful. The following changes are taken as indications of coronary insufficiency: (1) S-T deviation of 1.5 mm. or more with flattening or downward sloping S-T segment in the limb leads or lateral chest levels over the left ventricle, (2) inverted or diphasic T wave in leads I or II or lateral chest leads, and (3) development of bundle branch block or the appearance of frequent extra systoles.[9]

Intermediate coronary syndrome is distinguished clinically from classical angina pectoris by the intensity or duration of the stress and probably has as the basis of its pathological differentiation some degree of actual myocardial necrosis (subendocardial infarction). An excellent study of 30 selective cases of autopsied subendocardial infarctions has recently been reported. Eleven were classified as having at least 50% of the circumference of the left ventricular wall involved, being, therefore, large subendocardial infarcts. Five of these had electrocardiographic findings conforming with the pattern postulated for acute subendocardial lesions: (1) low amplitude R waves in the precordial leads V_1 to V_4, (2) depression of the S-T segment in at least the left precordial leads ranging from 2 to 7 mm., and (3) elevation of the S-T segment in lead AVR. In contrast to the electrocardiographic findings in these 5 cases, in the remaining 6 the changes were similar to those that would be anticipated as a consequence of acute transmural infarcts. It was suggested that these latter cases be designated as nontransmural infarcts in which between 50 and 75% of the thickness of the wall was infarcted rather than subendocardial infarcts.[10] The same authors studied the remaining 19 cases of this series with an additional 5 cases in which the subendocardial infarct was limited in its circumferential extent (small acute subendocardial infarcts). The types of electrocardiographic findings encountered were: (1) depression of the RS-T segment in all precordial or left precordial leads, (2) deeply inverted T waves in some or all of the precordial leads, and (3) diminished height of the R wave sometimes associated with the appearance of small Q waves. The electrocardiographic changes afforded a better relationship to the area of ischemic tissue than the actual region of infarction.[11]

Acute myocardial infarction is characterized by the classical triad of changes: (1) T wave inversion reflecting ischemia, (2) S-T elevation due to injury, and (3) Q wave appearance as a consequence of muscle death. In classical infarction, the early electrocardiographic changes are dominated by S-T junction elevation and bowing of the S-T segment. Reciprocal depression of S-T segments are seen over the uninvolved heart wall. To be emphasized, rather than the classical changes, is the fact that a normal record at the onset of an attack does not rule out the presence of myocardial infarction, and serial tracings for at least five days should be taken. Another laboratory index, the ballistocardiogram, probably gives better statistical results than help in individual situations.[12,13]

Pathogenesis. As previously discussed, the most widely accepted theory at the present time is that the pain associated with the coronary syndromes results from myocardial anoxia. Such anoxia, as previously described, may be dependent on vessel, myocardial, or blood factors. Specific underlying diseases have been nicely covered.[1]

Symptoms result in angina pectoris when there is a temporary imbalance between blood supply and myocardial muscle demand with no actual myocardial necrosis. In a series of 1,200 patients studied clinically in postmortem examination by injection of the coronary arteries, not a single incidence of angina pectoris was found in the absence of structural heart disease. However, transitory factors such as "coronary vasoconstriction, anemia, tachycardia, fever, hypermetabolism, or hypotension may act as precipitating agents in the production of pain in a patient whose coronary circulation is already compromised by arterial obstruction."[14] Normally intercoronary collateral channels of 40 micra are present. However, these may be seen to enlarge within twenty-four hours after marked coronary narrowing.

As a result of sustained myocardial ischemia, with the same underlying concepts of supply and demand and diseases applying as in angina pectoris, myocardial necrosis confined to the inner layer of the left ventricular wall may occur in the intermediate coronary syndrome. When such necrosis is less than the full thickness of the wall (nontransmural), the clinical syndrome produced is intermediate between that of angina pectoris and acute myocardial infarction.

While angina pectoris and the intermediate coronary syndrome are associated with disproportion between myocardial demand and the coronary blood flow, actual complete closure of the coronary channel often does not take place. On the other hand, in an acute myocardial infarction actual closure of a channel, usually a main channel, either by complete stenosis through the atherosclerotic process or supraimposition of a blood clot usually has taken place. The facts underlying such closure are what make up the study of the pathogenesis of atherosclerosis. More immediate factors such as blood hypercoagulability and viscosity, as influenced by lipid content, hematocrit, and other unknown factors, will merit careful scrutiny both in the laboratory and the patient in the future. Unusual causes of myocardial infarction such as penetrating wounds of the chest have been reported.[15]

Treatment. Treatment in angina pectoris includes:

1. Cessation of activity precipitating attack

2. Sublingual use of a hypodermic tablet of nitroglycerin in a 0.3-mg. dose. Generally only hypodermic tablets are in production since they are most easily dissolved. Dissolution and absorption require only ten to twenty seconds with relief occurring in less than one minute. Side effects such as flushing, fullness in the head, or severe expanding headaches may occur. Rarely a cardiovascular collapse may present itself. Use of a half of a tablet sublingually in these instances may prove helpful. The exact mechanism of nitroglycerin action is in dispute.[16] Erythrol tetranitrate may be as effective as nitroglycerin.

3. Carotid sinus stimulation acting through a vagal effect in slowing the heart and perhaps some other unknown cause

4. Alcohol, ½ to 1 ounce. (Experimental evidence in dogs shows a marked increase in coronary flow after elevation of blood level.[1])

5. Use of amyl nitrite ampules involves crush-

ing within a handkerchief, expense, inconvenience in carrying, and unpleasant odor upon use.

Of course, management of the syndrome of angina in general involves prevention of the attack. This may include alteration of work activities, dietary habits, at times including weight reduction and animal fat avoidance, and use of tobacco and other stimulants. Continual therapy may include long-acting nitrates such as pentaerythritol tetranitrate, triethanolamine trinitrate, or dipyridamole; xanthines such as theobromine, theobromine-calcium salicylate (Theocalcine), and aminophylline; sedatives such as phenobarbital, the bromides, and chloral hydrate; and the tranquilizers.

Therapy in the intermediate coronary syndrome depends mainly on whether the symptoms resemble more closely an attack of angina pectoris or myocardial infarction. Usually it is wise to err on the side of conservatism and overtreat until it can be established that little or minimal myocardial necrosis has occurred.

Treatment for acute myocardial infarction includes:

1. Immobilization and transportation to the hospital via an ambulance if possible. Care in the home during the initial weeks is inadvisable because of the difficulty with which complications, should they arise, can be handled.[17]

2. Relief of pain and apprehension through calm assured manner on the part of the physician, organization and control of the situation with definiteness as to course of action, and drugs such as morphine, 10 to 30 mg., depending on the size of the patient. Other opiate derivatives such as dihydromorphinone (Dilaudid), hydrochlorides of opium alkaloids (Pantopon), meperidine hydrochloride (Demerol), or codeine may at times be as good as morphine but are no better.

3. Immediate anticoagulant therapy initiated with: heparin, usually in a concentrated aqueous form, 100 to 150 mg. every eight hours with clotting times being obtained four hours after each dose for the first thirty hours, and simultaneous institution of an oral anticoagulant, the most commonly used being bishydroxycoumarin and warfarin sodium. Such anticoagulant therapy is probably best instituted in all cases at least during the acute period unless there is some contraindication such as a hemorrhagic diathesis or inability to obtain prothrombin times.[16] Some doubt has been raised as to the effectiveness of anticoagulant therapy by a recent study of a group of 148 patients with acute myocardial infarction.[18] The value of long-range anticoagulant therapy is outside the scope of this discussion.

4. Digitalis—used upon such indications as congestive heart failure or atrial flutter or fibrillation. Routine administration of digitalis is not indicated; in fact, there has been some work to indicate that perhaps increased coagulability of the blood in man is produced by such administration. Some literature is available also indicating that coronary flow may be diminished at least in the experimental animal.[19]

5. Immediate fibrinolytic therapy. Experimental evidence has accrued indicating that salvage of ischemic nonnecrotic myocardium may be affected as early as one hour after starting fibrinolytic therapy, long before lysis of the primary obstructing thrombus. Explanation is given by presuming collateral penetration and restoration of microcirculation and cellular nutrition.[20] Segmental perfusion of coronary arteries in man following a myocardial infarct has been reported after heart catheterization with the catheter in juxtaposition with the coronary osteum. A report of 8 patients was made. Evidence of improvement in the form of depression of serum enzyme levels and electrocardiographic changes were obtained; however, it was stated "a great deal of work and experience is required before the true value of fibrinolysis therapy is known."[21]

Prognosis. Practically by definition, the outcome of the typical angina pectoris attack is good with cessation of pain within a few seconds on stopping activity or sublingual administration of nitroglycerin. It is known that some attacks go on to sustained myocardial ischemia with necrosis leading to the intermediate syndrome.

In a study of 251 patients with intermediate coronary syndrome, 93 developed acute myocardial infarction within three months from the premonitory attack of pain; 2 died during the acute episode, 1 from sudden death on the second day (presumably from ventricular fibrillation) and 1 from acute pulmonary edema on the third day of the illness. Severe pulmonary cerebrovascular embolic and peripheral vascular complications were not observed. Peripheral cardiogenic shock with sudden drop in blood pressure, thready pulse, and cold, clammy extremities were not observed in the entire series. Attacks of angina pectoris were experienced by 40% of the patients even after subsidence of acute episodes of premonitory pain.[2]

Outcome of the acute myocardial infarction attack is conditioned by the development of complications such as cardiogenic shock, acute pulmonary edema, arrhythmias, systemic embolism, pericarditis, myocardial wall rupture, and myocardial aneurysms.

Prevention of systemic embolism is hoped for by means of anticoagulant therapy. Should embolization occur, an attempt at an embolectomy must be considered within four to six hours.

Pericarditis is usually of the transient type in approximately 20% of the patients within the first two days and usually never appears till twenty-four hours after the onset of the basic disease to allow for spread to the epicardium. Distinction should be made between the pericarditis associated with the acute attack and the postmyocardial infarction syndrome which arises two to eleven weeks after infarction and presumably is due to allergic response to previous extravasation of blood within the pericardium.[22]

Review of 31 cases of myocardial wall rupture associated with cardiac tamponade showed the occurrence to be most common within four to ten days after the onset. Patients with a persistent hypertension postinfarction are 3 times more likely to develop cardiac rupture.[23] Another series reporting 204 cases of myocardial rupture showed the most common site to be in the anterior wall, especially at the junction of the anterior wall and the septum.

Anticoagulants did not increase the incidence of rupture, but cardiac tamponade was relatively frequent in patients with myocardial rupture who were maintained on anticoagulants. Longer survival time was obtained for patients hospitalized within the first six hours after clinical onset of myocardial infarction. Death is immediate in ventricular rupture, whereas, in interventricular septal rupture, most patients survive a few days. Alertness for surgical management of cardiac tamponade was emphasized.[23]

Another study of 8 cases of myocardial rupture emphasizes the frequency with coexisting hypertension. The female sex, the older age group, early age of the infarct, and the effect of leukocytic infiltration with localization of the coronary occlusion (usually in the anterior descending branch) are all situations which call for alertness.[24] Rupture of the heart is most likely to occur during the second to the tenth day after infarction.

Myocardial aneurysms are often a preliminary to rupture. Recently an incidence of aneurysmal dilation of the ventricle has been given as between 8 to 22% of all infarcts. The time elapsed between the initial infarct and the appearance of left ventricular aneurysm was two weeks to two years in a report of 5 patients. Less than adequate bedrest following the infarct, multiple infarcts, and systemic hypertension were factors present in the group. Complete excision with ventriculoplasty during cardiopulmonary bypass was used in these 5 patients, and all survived the operation and have been observed for from six to forty months postoperatively with no mortality. The interval time between the initial infarct and surgery was five months to six years.[25]

PERICARDITIS

Pericarditis is an inflammation of the visceral or parietal pericardium or both. It has been classified pathologically into acute, subacute, and chronic (constrictive) pericarditis.

Etiologically pericarditis may be classified as follows:[26]

1. Idiopathic or nonspecific

2. Infectious, including bacterial or viral. Many cases previously classified as idiopathic are now thought to be due to several specific viruses, especially influenza virus, A and B; Coxsackie virus, A and B; and different subtypes.

3. Collagen group including rheumatic fever, systemic lupus erythematosus, rheumatoid arthritis, and other diseases. It has been proposed that disseminated erythematosus represents one etiological agent of the group of so-called idiopathic pericarditis. Some features attempting to separate disseminated lupus from acute idiopathic pericarditis have been presented in a recent work.[27]

4. Sensitivity states including serum sickness, autoimmune reactions, and various other allergic responses. The so-called postpericardiotomy falls into this group. The pericardial reaction presumed to represent a sensitivity reaction to blood in the pericardial sac for two or three weeks prior to trauma, surgery, or myocardial infarction.[28]

5. Inflammation of the contiguous structures such as myocardial infarction, dissecting aneurysm, esophageal disease, and pulmonary disease, especially pulmonary embolus and pneumonia

6. Neoplastic

7. Metabolic (renal failure, etc.)

8. Traumatic—direct and indirect. Blunt injuries such as can be sustained by striking the anterior chest against the wheel of an automobile accidentally or falling may lead to shock due to pericardial tamponade, severe precordial pain due to pericardial tearing, or even constrictive pericarditis.[29] Penetrating wounds are usually associated with shock. It should be remembered that the apparent course of a knife or bullet wound may be misleading.[30]

Symptomatology. Precordial pain is considered the characteristic symptom of acute pericarditis. The pain is usually described as sharp or dull and oppressive. It may be localized to the pericardium or substernal area or be more widespread. Radiation to the interscapular region posteriorly, neck, epigastrium, shoulders, or arms and down to the fingers is common. It is aggravated by deep breathing, coughing, and laughing. It may be accompanied by dysphagia, dyspnea, and hiccups.[31]

A friction rub when present is widespread and usually present from the onset of the pain persisting for seven to ten days.

Usual laboratory findings. White cell and sedimentation rate are elevated. SGO-T titre is usually normal or only minimally elevated. In 41 cases reported of acute pericarditis, the SGO-T titre was normal in 36, elevated in 3, and equivocal in 2 with the highest peak value being 75 units. A normal SGO-T titre is strong evidence that myocardial infarction is absent.[8]

X-ray findings. The cardiac silhouette on x-ray may be increased as a result of some associated effusion. In some instances, there may be a left pleural effusion. The associated pericardial effusion may fluctuate throughout the course of the disease.[5]

Electrocardiogram findings. These consist of elevation of the S-T segment of 1 or 2 mm., usually in most of the precordial and many of the limb leads due to the process being present over the entire epicardial surface of the heart, and a flattening and inversion of the T waves in the course of two or three days.

The electrocardiographic changes may be distinguished from those of a myocardial infarction by the rapid evolutionary change, occurring within days to weeks instead of months, and the absence of pronounced "reciprocal changes," namely depresion of S-T segments in leads other than those in which elevations are observed.[16]

With increasing development of effusion causing tamponade or in chronic constrictive pericarditis, the QRS complexes show low voltage with or without T wave inversions. It is felt that the electrocardiographic changes of acute pericarditis are probably due to subepicardial myocarditis.

Pathogenesis. The precordial pain in pericarditis is believed to arise from irritation of the lower parietal pericardium and the contiguous mediastinal costal or diaphragmatic pleura.

Treatment. Emergency treatment involves: (1) elimination of pain through the use of opiates such as codeine (30-60 mg. intramuscularly) and morphine sulfate (7½-15 mg. intramuscularly), (2) vigilance to avoid tamponade at the earliest sign of which pericardial aspiration either through a closed puncture or open surgical procedure will be necesary, (3) surgical removal of foreign bodies in cases of traumatic pericarditis which must be decided upon according to individual circumstances; usually thin objects such as needles and wires and large foreign bodies should be removed,[30] (4) use of adrenal steroids for alleviation of symptoms (At times recurrence of symptoms occurs with cessation of treatment. Prolonged treatment with corticoids may result in hypercorticoadrenalism.[26]), and (5) relief of pain by stellate ganglion block which has been reported with good effects in the clinical situation in patients with recurring severe precordial pain.[32]

Of course, after the management of the emergency situation, bed rest and the institution of diagnostic procedures to determine a possible underlying cause are appropriate.

Prognosis. The outcome of the acute situation involving pain is usually quite good, although, as implied above, relief may be temporary and continued attention with opiates or attempted stellate ganglion block may be in order. The long-range outcome of the process of pericardial inflammation depends on the underlying etiology. In so-called acute idiopathic pericarditis, a benign course is usual. The average case lasts a few weeks, although some run through 3 or more cycles lasting several months or possibly longer. The chest pain, fever, pericardial friction, and actual pericardial effusion may keep recurring until final recovery takes place.[5] However, fatal outcomes have been reported.[33]

DISSECTING ANEURYSM

A dissecting aneurysm is a hemorrhage in the aortic media with a separation of the layers of the aortic wall. There may or may not be an associated intimal tear most commonly occurring in the ascending aorta just distal to the aortic valve. Such a tear may, however, occur at the great vessels in the aortic arch or in the descending or abdominal aorta.

The medial hemorrhage usually extends peripherally, although proximal dissection with rupture into the pericardial sac and cardiac tamponade may occur. Such pathological change also results as a rupture into the retroperitoneal space or esophagus or reentry into the original aortic lumen giving rise to the "double-barrelled" aorta. Occlusion of branches of the aorta may cause death secondary to the affected organ system being involved. Histologically, the disease is diagnosed as a cystic medionecrosis. It has also been postulated that such a medionecrosis is due to disease of the vasovasorum.

Dissecting aneurysm sometimes occurs in association with 3 main situations: (1) Marfan's syndrome, in which associated findings are abnormally long and thin extremities, fingers, and toes, with relaxation of the ligaments, hypotonic musculature, dolichocephalic head, kyphosis, funnel chest, subluxation of the lenses, high arched and sometimes cleft palate, and prominent ears, (2) pregnancy, most commonly in the last trimester, and (3) hypertension.

Coarctation of the aorta and aortic stenosis have also been implicated as preexisting diseases. A report of a case claimed to be the twenty-third published instance of the syndrome of Marfan's with associated dissection of the aneurysm was reported a few years ago. Associated cardiovascular abnormalities were coarctation of the aorta and patent ductus arteriosus. The diagnosis was made before death and confirmed at autopsy.[34] Syphilis is not thought to be an underlying etiological factor.

Symptomatology. Generally the coexistence of chest pain, aortic murmurs, and peripheral arterial occlusion is practically diagnostic of this condition. Symptomatically, pain is the most common presenting symptom reported in 21 of 30 reported autopsied cases with the location being in the chest in 12, in the abdomen in 5, and in the extremities in 4. Other findings have included neurological or psychiatric problems, congestive heart failure, dyspnea, vomiting, hemoptysis, edema, and apprehension. Findings on physical examination are varied but particular emphasis is given to the high incidence of an aortic systolic murmur occurring in approximately 41% of all cases.[35] Other manifestations usually include those arising from occlusion of peripheral arteries involving the particular organ system such as occlusion of peripheral arteries, renal involvement, and ischemic changes in the spinal cord.

Laboratory findings. Mild anemia was found in 10 patients, leukocytosis in 21, and hematuria in 4 in the above mentioned series of 30. The SGO-T titre was somewhat elevated in 1, in which there was also the associated posterior wall infarction.

X-ray findings. The most common finding is a straightening of the aortic curvature, occasionally with rough irregularities. Left ventricular hypertrophy is frequent, and findings of pericardial effusion must be watched for. Aortography performed by the use of a forward angiographic technique (intravenous approach) has been reported as quite useful.[36]

Electrocardiographic findings. Changes are reported as variable, but nonspecific changes in the ST-T segments were frequent. In fact, changes suggestive of myocardial infarction were found in 5 of 30 patients.[35] The pattern of myocardial infarction may be a result of extension of the process into and involving the coronary arteries. Other reported electrocardiographic abnormalities included rhythm disturbances.

Pathogenesis. As described, it has been known that the primary lesion is a splitting of the medium of the aorta.[37] It has also been postulated that 2 types of medionecrosis occur, 1 under the age of 40 and the other predominately in the older age group. The first consists predominately of elastic fiber degeneration, and the latter consists of a predominance of muscle fiber degeneration.[35]

Treatment. Treatment obviously depends upon correct diagnosis. Pre-operative management with absolute bed rest, relief of pain, oxygen if necessary, and control of severe hypertension with ganglionic blocking drugs may prove helpful. A sympathetic block may be necessary in cases where a limb occlusion is present. Aortic surgical procedures include reentry facilitation, with obliteration of the false passage below, and excision and replacement graft. Additional techniques may be developed in the near future.

Prognosis. Prognosis is contingent upon recognition of the entity as a surgical emergency and early accurate diagnosis. Also, prompt surgical treatment must be employed if the natural survival rate as usually stated of 10% is to be improved.

PULMONARY EMBOLUS

Pulmonary embolization refers to the entrance of a free-floating blood clot from the venous system on the right side of the heart into the pulmonary artery and the sequence of events dependent thereon. The source of the blood clot has been placed in the leg veins by various investigators in some 70 to 90% of noncardiac cases. In cardiac patients emboli may arise from the right side of the heart in 25%. It is emphasized that the arm veins are an infrequent site of the thrombosis.[38] Recently, origin after dental extraction, presumably from phlebothrombosis and embolization to the superior venous circulation, has been reported.[39]

If pulmonary embolization is very massive, shock and acute pulmonary hypertension and even immediate death may result. In patients in whom medium-sized or moderately large pulmonary arteries are occluded, pulmonary infarction follows. Pulmonary infarction has, at times, been thought to occur without actual embolization in such instances as sudden loss of large volumes of edema[40] or chronic congestive heart failure.

Certain underlying factors may make pulmonary embolization more likely. These have been listed as:

1. Prior history of thromboembolic disease

2. Heart disease. Pulmonary embolus is said to be 3½ times more frequent in patients with heart disease, with or without failure, than in those in which such disease does not exist. Auricular fibrillation in congestive heart failure increases the incidence of pulmonary embolus tenfold.

3. Cancer. Malignancies of the gastrointestinal tract, lung, or genitourinary tract increase the risk over fourfold.

4. Trauma to the leg. An eightfold increase has been reported following such trauma.

5. Obesity. A twofold increase has been reported in such situations.

6. Immobility. A direct relationship between the degree and the length of immobility and the incidence of thromboembolic diseases is noted.[41]

Symptomatology. Classically, the triad of chest pain, dyspnea, and hemoptysis is said to characteristically describe pulmonary embolus. However, in actuality, in a study of 606 patients at autopsy, only 3% manifested all 3 findings.[41] It is said that an awareness of the variable and pure manifestation of pulmonary embolus should keep the clinician alerted to the possibility that this condition may exist in a patient with unexplained dyspnea, hypotension, and chest pain. The presence of hemoptysis, friction rub, or any suspicious sign is sufficient justification for the immediate institution of adequate therapy.

The literature usually considers pulmonary embolus and infarction together. Although an exact differentiation is impossible, as the symptoms may merge, some separation can be made. Characteristic manifestations of pulmonary embolus are dyspnea, substernal oppressive chest pain, manifestations of cerebral ischemia (restlessness and syncope), electrocardiographic changes, shock, right-sided heart failure, and sudden death. If pulmonary infarction develops as a consequence of pulmonary embolus, the patient may develop pleuritic chest pain, hemoptysis, cough, dyspnea, fever, and an elevated leukocyte count. It is felt that 50 to 60% of patients respond in this latter manner.

Laboratory findings. The routine laboratory procedures such as sedimentation rate and white blood cell count are influenced by the coexistence of an underlying inflammatory disease, possibly of the extremities in the venous channels. There is often a moderate leukocytosis with or without actual pulmonary infarction. In the initial stage, the bloody sputum of an infarct contains at most a few leukocytes. A sanguineous pleural effusion may occur, and in patients with congestive heart failure this suggests the coexistence of pulmonary infarction. Patients with chronic congestive failure and impaired hepatic function become somewhat jaundiced a few days after the occurrence of an infarct.

SGO-T, which is concerned with the transamination between aspartic and α-ketoglutaric acids, is present in high concentration in the heart muscle and found markedly elevated in the serum shortly after myocardial infarction. In the lung, SGO-T concentration is low. In about two-thirds of patients with pulmonary infarction, an elevation of SGO-T has been found, but the increase was greatest on the average of five days after the disorder had become clinically apparent instead of the usual twenty-four to forty-eight hours as in myocardial infarction. In patients with pulmonary embolus unaccompanied by infarction, little or no increase in SGO-T titre was found. However, since overlapping between the 2 conditions does occur, other enzymes have been studied, particularly lactic dehydrogenase with electrophorectic separation into LD4 and LD5. Studies (LD) on 12 patients who had chest pains showed increase in 6 patients with myocardial infarction in the LD5 fraction within ten hours after the process arose and lasting twelve to fifteen days. Three patients with coronary insufficiency without myocardial necrosis showed no alteration in the plasma pattern. Plasma alteration in pulmonary infarction showed a sharp increase in LD3 and LD4 with only a relative elevation in LD5. It has been suggested that these findings may be of help in differentiating myocardial necrosis from coronary insufficiency and pulmonary infarction.[15]

X-ray findings. X-rays are of little use in the diagnosis of embolus. The roentgenographic picture of pulmonary infarct is variable and nonspecific. The classical example of a wedge-shaped infarct is extremely rare. A small pleural effusion at the base of the lung with or without a demonstrable pulmonary density should be considered as suggestive roentgenographic evidence of pulmonary infarction unless another definite cause can be proved.

Electrocardiographic findings. Occasionally the finding of a chronic cor pulmonale may be present due to pulmonary embolus. The findings of acute cor pulmonale in their entirety are not frequently seen. The more common changes are a shift of the electrical axis to the right, incomplete or complete right bundle branch block, T wave inversion in the right precordial leads, RST segment depression in the left precordial leads, tall, pointed P waves in the limb leads (P = pulmonale), or the onset of an atrial arrhythmia.

Two patients over the age of 65 have been reported in whom atrial flutter with 1:1 atrioventricular conduction was present. It was noted in each patient that pulmonary emboli had occurred.[42] It has also been postulated that electrocardiographic changes associated with large pulmonary emboli are caused by immobile ventricles. "If tricuspid insufficiency develops from the embolus, the ventricle becomes mobile and the electrocardiogram pattern does not occur; thus, when one suspects a major pulmonary embolus in the absence of a typical electrocardiogram, tricuspid insufficiency should carefully be searched for with studies of venous pressure patterns."[43] In spite of meticulous attention to detail, there will be cases in which the electrocardiogram may almost exactly stimulate the changes found in myocardial infarction.[44]

Pathogenesis. The initiating event is indicated above, a dislodgment of a clot into the pulmonary circulation. Experimental evidence indicates that severe circulatory disturbance will occur when 60 to 85% of the pulmonary circulation is blocked off and such is generally fatal when it is 85 to 90% complete. Circulation and cardiac disturbances which occur with large pulmonary emboli may be due to mechanical interference with cardiac output, vascular reflexes, myocardial ischemia, hypoxia, and arterial anoxemia. It has been stated that a small embolus may give rise to serious consequences by inducing reflex pulmonary vasoconstriction. The clinical evidence of this is most uncertain. Animal experimentation does not provide firm support for reflex pulmonary vasoconstriction produced by embolization. However, one must be cautious in transferring experimental information to the clinical setting. It has been noted "that if a substance (e.g., serotonin) is liberated by an embolizing thrombus producing effects of an embolus, it would not be surprising that nonthrombotic matter (e.g., Lycopodium spores, barium sulfate, rubber catheters and the like) does not produce bonafide pulmonary vasoconstriction in the experimental animal and that the main effect of these emboli is mechanical blockage of the lung vessels."[46]

Treatment. Therapy is divided between attention given to the patient having sustained an acute pulmonary embolus and the treatment of venous thrombosis with prophylaxis generally of thromboembolic disease, as follows:

1. Heparin therapy. Subcutaneous heparin therapy consists of either 75 or 100 mg. at eight-hour intervals or 100 to 300 mg. at twelve-hour intervals. The type of heparin best used is concentrated aqueous since slowly absorbed preparations have been proved unsatisfactory because of inconstancy of absorption and frequency of pain and hematomas at the site of injection. Continuous intravenous infusion with 250 mg. being placed in 1,000 cc. of 5% glucose in water, the infusion being regulated to produce a twofold increase in clotting time, is another type of heparin therapy.

2. Oral anticoagulants of the coumarin or indanedione type

3. Plasmin and plasmin activators (streptokinase and urokinase). There are no well-controlled studies to suggest that intramuscular or sublingual administration of these enzymes has any value. Intravenous use of these substances may prove fruitful.

4. Vein ligation. It must be remembered that superficial ligation of the femoral vein will do little good. Over half of deep thrombi (venous) are found in locations where bilateral superficial ligations of the femoral vein will not prevent subsequent embolization. Bilateral vena caval ligations are more effective but are associated with a much higher incidence of postphlebitic sequelae. Interlacing sutures forming a vena cava filter have also been used.[41] Vein ligation may be pertinent to prevent chronic pulmonary embolization in patients with underlying organic heart disease in which the pulmonary emboli have produced a situation of chronic heart failure unresponsive to the usual methods of treatment.[47]

5. Epidural sympathetic block. By insertion of a polyethylene catheter into the epidural space, intermittent injection of a local anesthetic for several days to a week may be carried out. This is particularly useful in the treatment of so-called "phlegmasia cerulea dolens," which is a marked degree of arteriospasm associated with a venous thrombosis.

6. Usual ancillary measures such as bed rest and wrapping should not be neglected. Antibiotics probably have no place in the uncomplicated aseptic form of deep venous thrombosis.

As far as the treatment of the acute episode itself, little in the past has been possible except for the administration of opiates, oxygen, aminophylline, atropine, and papaverine hydrochloride in an effort to combat vascular spasm. Many of the fatal embolic episodes occur in less than fifteen minutes after the onset of symptoms. Recently some interesting approaches to the situation have been developed. Success has been reported with the performance of 2 pulmonary embolectomies utilizing temporary cardiopulmonary bypass. It is suggested that some patients with acute massive pulmonary embolism will survive long enough to institute cardiopulmonary bypass.[18] Here also the intravenous administration of fibrinolytic drugs may offer promise for the future, but at present this is still in the experimental stage.[38]

The treatment for pulmonary infarction itself consists of general supportive care with oxygen administration as needed and antibiotic therapy to cover associated infection which often occurs in the infarcted area.

Prognosis. The outcome in pulmonary embolus is, in general, as specified above, dictated by the size of the pulmonary vessel occluded. Occlusion of a large vessel results in death within a few minutes; occlusion of a medium-sized vessel will result in the classic infarction; and occlusion of a small vessel may go unnoticed. Therapy influences the outcome in the instance of massive embolism with the speed with which it is instituted. In the case of the classic pulmonary infarction, appropriate attention to supportive measures and treatment of the underlying condition will determine the long-range fate of the patient.

SUMMARY

Cardiovascular chest pain presenting as an emergency situation has been reviewed. The underlying processes of coronary disease, pericarditis, dissecting aneurysm, and pulmonary embolus have been discussed. Each of these conditions has been considered from the point of view of current medical attitudes as to symptomatology; laboratory, x-ray, and electrocardiographic findings; pathogenesis; treatment; and prognosis.

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REPEATED THYROIDECTOMY carries a high incidence of complications, although the mortality rate for the initial procedure has been greatly reduced. Myxedema, vocal cord paralysis, and hypoparathyroidism are particularly common and sometimes unavoidable if treatment is adequate. Nevertheless, recurrent malignant tumors and most recurrent adenomatous goiters must be resected. Radioactive iodine will adequately control most recurrent exophthalmic lesions and also thyroiditis, unless diagnosis is in doubt.

Myxedema is the commonest postoperative complication but is easily controlled with thyroid drugs. To prevent myxedema, 4 to 5 gm. of thyroid tissue should be preserved in patients with parenchymatous hypertrophy or adenomatous goiter; about one-third to one-half a lobe should be preserved on each side in thyroiditis, whenever possible; with recurrent carcinoma, however, total thyroidectomy is often necessary at the second operation, as is deliberate sacrifice of the recurrent laryngeal nerve, which causes permanent vocal cord paralysis. The incidence and extent of nerve damage vary greatly in operations for other thyroid conditions, and the resulting functional impairment may be either permanent or transient. Postoperative hypoparathyroidism may also be transient and is usually due either to impairment of blood supply or removal of 2 or more parathyroid glands. Parathyroid function is rarely compromised if the posterior rim of each lobe is preserved, and an inadvertently excised gland can sometimes be reimplanted in muscle and continue to function.

Only 2 patients died out of 548 who underwent 2 or more thyroid operations, but the incidence of complications was considerably higher: Myxedema occurred in 27%, permanent vocal cord paralysis in 11.1%, transient paralysis in 6%, permanent hypoparathyroidism in 5.8%, and transient hypoparathyroidism in 5.3%. The incidence of myxedema was 60% in malignant as compared with 16.2% in benign lesions. Permanent hypoparathyroidism was about 3 times as common in malignant lesions, but the differences in other complications were smaller.

OLIVER H. BEAHRS, M.D., and DONALD J. VANDERTOLL, M.D., Mayo Clinic and Foundation, Rochester, Minn. Surg. Gynec. Obstet. 117:535-539, 1963.

Pitfalls in the X-Ray Diagnosis of Carcinoma of the Esophagus and Pharynx

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X-RAY is of invaluable assistance in the diagnosis of carcinoma of the esophagus and pharynx. The history of progressive dysphagia, plus a positive report of carcinoma of the esophagus or pharynx following x-ray study by a competent radiologist, usually establishes the diagnosis of carcinoma of the esophagus or pharynx. However, as with any other laboratory tests, false positives occur, and it is important to realize that the x-ray diagnosis of carcinoma of the esophagus and pharynx is not infallible. Before surgery, esophagoscopy is essential to avoid a serious error in operating for carcinoma when in essence this condition does not exist.

Two cases are presented in which the x-ray diagnosis of carcinoma of the esophagus or pharynx was made. However, endoscopy failed to reveal the presence of a carcinoma, and further investigation revealed a neurological basis for the dysphagia and the x-ray abnormalities. These two cases are presented to underline the necessity for caution in accepting the x-ray diagnosis of carcinoma of the esophagus and pharynx.

Case 1. This 66-year-old white male presented with a history of progressive dysphagia of three weeks' duration. Thirteen days prior to his examination, he became completely unable to swallow and developed hoarseness. X-ray studies following the patient's admission to the hospital were reported as follows (Fig. 1): "On examination of the esophagus with barium, a constricting lesion of either the upper esophagus or lower pharynx and approximately at the junction of these areas strongly suggests the presence of a mass and probably carcinoma. The exact site of origin is difficult to determine. The possibility of invasion of the larynx is also a consideration. There is considerable dysphagia present, and a small amount of barium was aspirated during the procedure. The lower esophagus appeared normal and the stomach and duodenum also appeared normal. Conclusion: carcinoma, lower pharynx or upper esophagus with possible invasion of the larynx."

Prior to surgery the surgeon performed esophagoscopy and noted partial vocal cord paralysis, edema, spasm of the cricopharyngeus muscle, and no neoplasm. Neurological consultation was obtained. On neurological examination, the patient was found to have abnormalities including a left Horner's syndrome, involvement of the finger-to-nose test on the left, involvement of heel-to-knee-to-toe test on the left, hoarseness, marked ataxia with a positive Romberg, and decreased appreciation of pinprick involving the right upper and lower extremities and the right trunk.

A diagnosis of Wallenberg's syndrome, due to occlusion of the posterior inferior cerebellar artery, was made. A spinal tap revealed the patient to be suffering from central nervous system syphilis, and the etiology of the Wallenberg's sydrome was on a syphilitic basis. The patient responded to penicillin therapy and anticoagulant therapy with a gradual clearing in the dysphagia and hoarseness. The remainder of the abnormal neurological findings have persisted to date. A repeat x-ray on December 5, 1962, was entirely normal.

Case 2. This 73-year-old white male presented with a history of progressive dysphagia associated with 35-lb. weight loss over a period of one year. This progressed to the point where he had difficulty swallowing even soft foods. X-ray examination prior to his admission to the hospital was diagnosed as carcinoma of the esophagus. A repeat x-ray following the patient's admission to the hospital was reported as follows (Fig. 2): "As thick barium was ingested, there was a filling defect apparent in the base of the pyriform sinuses particularly on the left, with almost no passage of thick barium below this level. When the patient was in the prone position, only a fine trickle could be seen to pass

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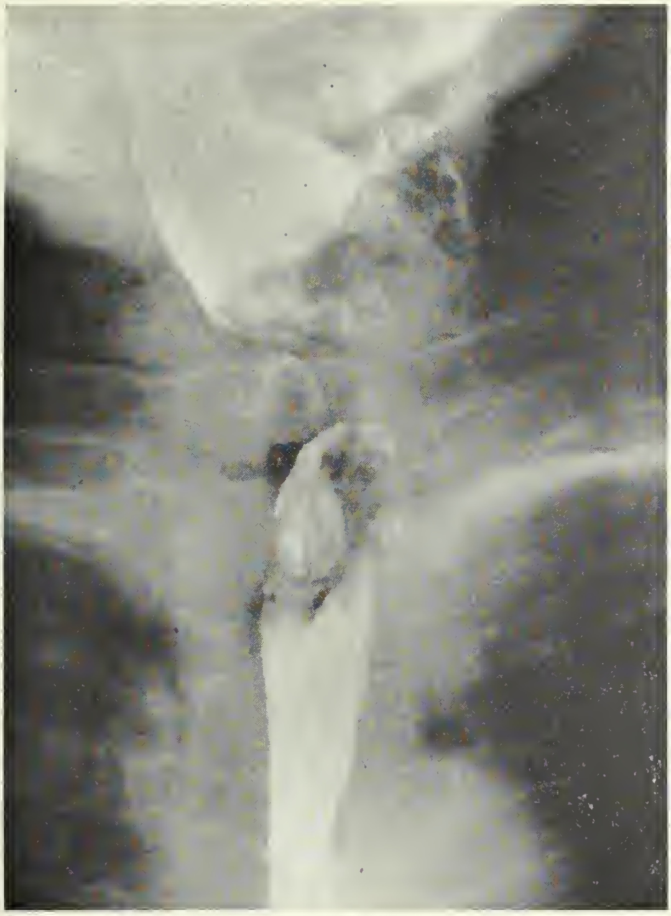

Fig. 1. Roentgenogram (case 1)

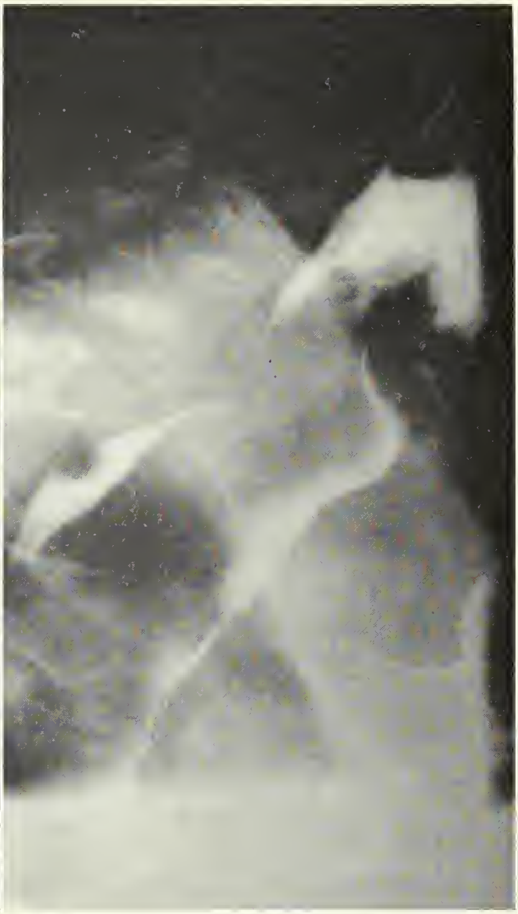

Fig. 2. Roentgenogram (case 2)

below the hypopharynx into the upper cervical esophagus. When the patient was placed in the supine position, flow of barium was not impeded as greatly, although there was still considerable damming up of the barium within the deformed pyriform sinus–hypopharyngeal–cervical esophagus junction. The trickle of barium was narrow at this level in spite of the freer flow in the supine position than in the prone position. The length of involvement was apparently greater than the narrowed zone itself and did extend into the hypopharynx as well as cervical esophagus as described above. The hypopharyngeal components seem more lobulated than the cervical esophageal component. The thoracic esophagus appeared normal except for multiple tertiary contractions. The findings described above suggest a lobulated neoplasm probably primary within the pyriform sinus with extension to cervical esophagus. It is conceivable that this might be primary in cervical esophagus with cephalad extension; however, the involvement described above is more characteristic for hypopharyngeal origin."

Prior to surgery, esophagoscopy was performed and no evidence of carcinoma was demonstrated. Neurological consultation was obtained and was reported as follows: "On examination the patient had a nasal quality to his voice. The patient had bilateral facial nerve weakness. There was bilateral weakness of the tongue. The palate moved in the midline. The patient had marked difficulty swallowing. The patient had atrophy about both shoulder girdles and diffuse weakness of the musculature of both upper extremities. In addition, he had bilateral weakness of the iliopsoas muscles of the legs and mild weakness of the quadriceps and hamstrings. The fundi were negative. The biceps and triceps reflexes were equal bilaterally. The knee jerks were absent bilaterally. The ankle jerks were equal bilaterally. The toe signs were negative. The motor, sensory, and coordination examinations were negative." A diagnosis of amyotrophic lateral sclerosis was established.

COMMENT

The differential diagnosis of dysphagia is broad. It encompasses many neurological conditions which involve the central nervous system and the nerves and musculature involved in the swallowing mechanism, as well as primary conditions localized to the esophagus. Hysteria may mimic organic causes of swallowing difficulties. X-ray is of tremendous assistance in the diagnosis of carcinoma of the esophagus and pharynx, but its limitation should be appreciated. False positives do occur, as is so vividly illustrated in the cases presented. Endoscopy is essential in confirming the x-ray diagnosis of the carcinoma of the esophagus and pharynx and should be routinely performed before any surgical procedure directed toward carcinoma of the esophagus and pharynx is commenced.

SUMMARY

Two patients with neurological disease simulating carcinoma of the esophagus and pharynx, in whom the characteristic x-ray picture of carcinoma was reported, are presented.

The need for endoscopy to confirm the diagnosis of carcinoma of the esophagus and pharynx prior to operative intervention is underlined.

GLOMUS TUMORS occur singly in adults, usually on the extremities. Small subungual tumors are the most difficult to locate and eradicate. Symptoms may first appear after a crushing or lacerating injury. Pain is a constant characteristic and usually is immediately relieved by complete excision. Persistence or recurrence of pain postoperatively is due to incomplete removal or occasionally to hypersensitivity at the tumor site or formation of a neuroma in the scar. The glomus tumor is distinguished at operation as a bluish-red mass, sometimes with blood vessels attached. The lesion is encapsulated and seldom is more than 1 cm. in diameter. Microscopically, the neoplasm has endothelium-lined vascular spaces surrounded by masses of glomus cells, round or spindle-shaped and epithelioid. Symptoms were relieved by the initial surgical treatment in all but 11 of 74 patients with glomus tumors. Results were poor in 5 of the 20 patients with subungual tumors.

ROBERT R. SHUGART, M.D., EDWARD H. SOULE, M.D., and EINER W. JOHNSON, JR., M.D., Mayo Clinic and Foundation, Rochester, Minn. Surg. Gynec. Obstet. 117:334-340, 1963.

VOLUME RESTORATION after blood loss is a two-phase dilutional process, with an intermediate period of rising hematocrit values. Hematocrit, total plasma protein concentration, and free water clearance decline swiftly in the first thirty minutes after bleeding. Protein-poor extravascular fluid is absorbed from interstitial space to restore circulating volume, and antidiuretic hormone appears to be mobilized to restore the lost intravascular volume by conservation of water. In the intermediate period from thirty minutes to two hours after blood loss, hematocrit values rise while creatinine clearance, minute urinary volume, and excretion of sodium and potassium drop almost to prebleeding levels. Aldosterone-like activity is initiated and influences restoration of volume. From two to twenty-four hours after hemorrhage, in the second dilutional phase, hematocrit again declines and volume reconstitution on a more permanent basis apparently is achieved by addition of protein-rich fluid. After 14 healthy men donated about 500 cc. of blood, stable hematocrit was achieved in about twenty-four hours by restoration of 15% of lost blood volume, but replenishment of red cell volume was more gradual.

RAYMOND C. DOBERNECK, M.D., and BERNARD ZIMMERMAN, M.D., University of Minnesota, Minneapolis, and West Virginia University, Morgantown. J. surg. Res. 14:36-42, 1964.

Cerebral Astrocytoma Metastatic to Cervical Lymph Nodes

A Case Report

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Fargo

Extracranial metastasis of cerebral gliomas rarely has been reported. In view of this infrequency and of the variety of primary intracranial neoplasms, certain criteria were established by Weiss[1] in order to establish standards by which a given case may be accepted in this rather unusual category. These criteria include: (1) the presence of a single histologically characteristic tumor of the central nervous system must have been proved, (2) the clinical history must indicate that the initial symptoms were caused by the tumor, (3) a complete autopsy must have been performed and reported in sufficient detail to rule out the possibility of any other primary site, and (4) the morphology of the central nervous system tumor and of the distant metastasis must have been identical with due allowance for degrees of anaplasia.

In the case presented, the third condition is not applicable, since the patient is still living. The microscopic sections of both the cerebral and lymph node lesions show histological evidence so characteristic of malignant astrocytoma that there can be no reasonable doubt as to the origin of this neoplasm. A thorough medical examination, including radiographic and laboratory studies, has shown no evidence of disease except for the central nervous system and lymph node lesions.

CASE REPORT

The patient, a 46-year-old white man, first noted headaches and inability to express himself correctly in September 1962. The difficulty with self-expression was associated both with spoken and written words. Statements which he said or wrote down seemed sensible at the time but were later recognized as nonsense. Headaches were principally occipital and progressively became more frequent and severe. Later he developed some unsteadiness of the right leg and a slight diminution in sensation on the right side of the body compared with the left. He was admitted to the hospital December 29, 1962, and a general physical examination was negative. Neurological examination revealed the patient to be fairly well oriented with a mild memory impairment. A severe expressive aphasia and mild receptive aphasia were noted. He demonstrated an almost complete anomia, being unable to name even the simplest objects, but recognized the objects readily when the name was given. Various forms of perseveration were observed. Ocular fundi were normal, and there was a minimal right facial weakness. No difference in sensory function was detected in the 2 sides of the body, but there was a mild degree of right motor weakness.

A left carotid angiogram revealed a large mass deep in the left posterior median temporal lobe, displacing the anterior and middle cerebral arteries, the medial aspect being in the midline or slightly crossing the midline. There was much tumor staining with the opaque media.

On January 3, 1963, a left posterior temporoparietal craniotomy was performed, and a large tumor was found invading the temporal lobe in its inferior aspect posteriorly. The tumor appeared demarcated from surrounding brain tissue but was firmly attached to the tentorium and the wall of the transverse sinus. By careful dis-

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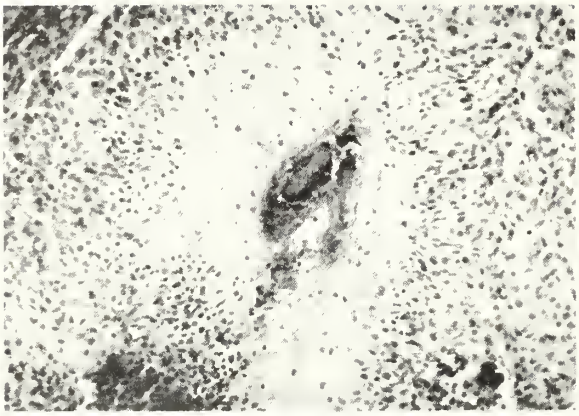

Fig. 1. Cerebral lesion showing palisading of fibrillary astrocytes around central area of necrosis and hemorrhage.

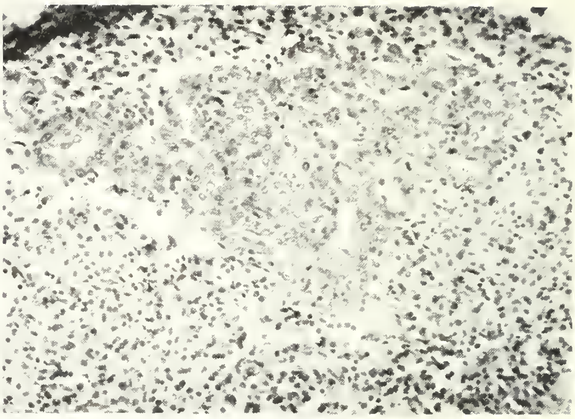

Fig. 3. Cerebral lesion showing marked vascular endothelial proliferation. Note frequency of mitoses in adjacent tumor.

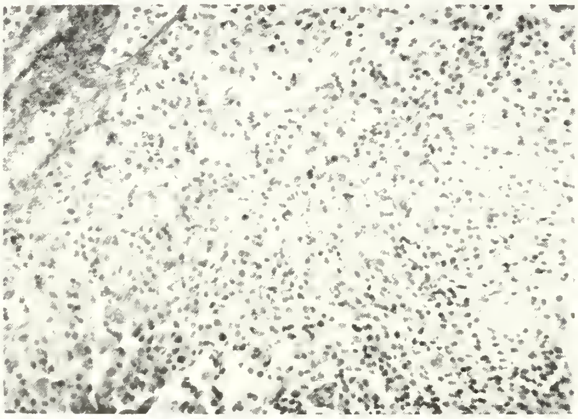

Fig. 2. Cerebral lesion showing area in which protoplasmic astrocytes predominate.

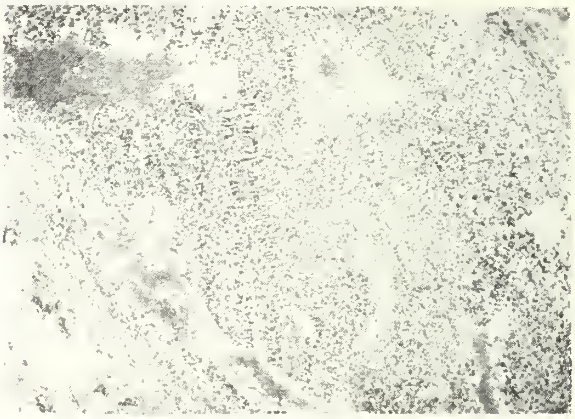

Fig. 4. Low-power view of cervical lymph node containing metastatic grade IV astrocytoma.

section, separation from these structures was accomplished, and no grossly demonstrable tumor was allowed to remain. The patient made an uneventful postoperative convalescence and recovered rather rapidly from his speech deficit.

Gross examination of the specimen revealed gray-white tissue somewhat more firm than normal brain tissue but containing focal soft areas and multiple punctate hemorrhagic areas. Microscopic sections revealed almost the entire specimen to consist of tumor tissue, there being a thin overlying shell of uninvolved cortex in a separately submitted portion of occipital lobe. Tumor tissue was present at the deepest extent of the specimen. The tumor showed the characteristic architecture of a malignant glioma, with multiple areas of stellate necrosis often associated with central hemorrhage and surrounded by palisaded astrocytes of the fibrillary type (Fig. 1). There were also small areas in which protoplasmic astrocytes (gemistocytes) were predominant (Fig. 2). Vascular endothelial proliferation was a marked feature, as is common in malignant gliomas. There were large collections of proliferating capillaries, with multiple channels, endothelial tufts, and solid cords of endothelial cells (Fig. 3). Although giant cells were rarely seen, the degree of cellularity, nuclear variation, and mitotic activity indicated a relatively high grade of malignancy.

After an interval of six weeks to allow wound healing, the patient was given radiation therapy consisting of a total of 4,000 r. tumor minimum and 5,000 r. tumor maximum orthovoltage x-ray over thirty days through multiple ports.

The patient's second hospital admission began September 28, 1963, because of severe pain in the left shoulder and arm, with progressive paralysis of the left arm at the shoulder. These symptoms had begun three weeks prior to admission. There had been no recurrence of the speech or memory difficulty.

Examination revealed the patient to be quite mentally clear and alert with good speech and memory. There was limitation of motion in the neck with fullness and 2 discreet masses palpable

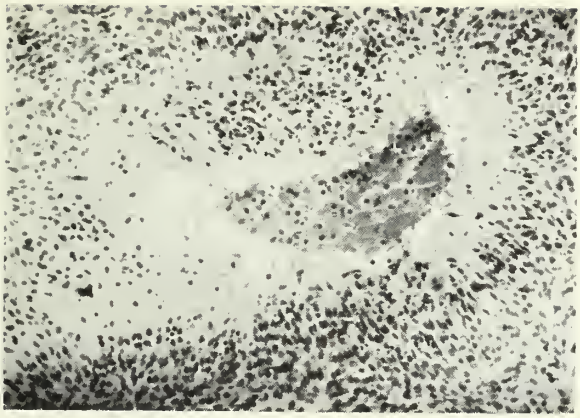

Fig. 5. Cervical lymph node lesion. Note similarity to figure 1.

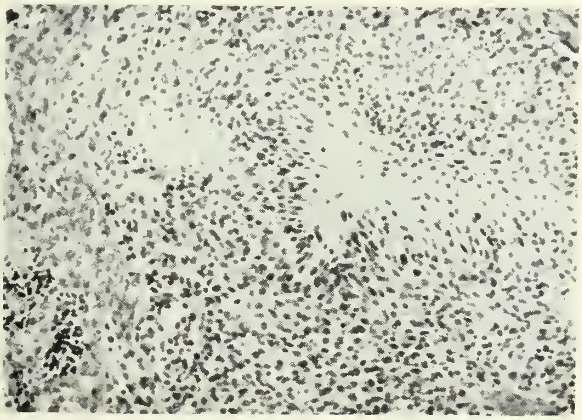

Fig. 6. Cervical lymph node lesion, showing palisading and necrosis on right and vascular endothelial proliferation on left

in the left side of the neck. Weakness was noted in the left deltoid, biceps, rhomboid, and supraspinatus muscles. Normal or fairly good function was evident in the trapezius, latissimus dorsi, triceps, and forearm and hand muscles. Anesthesia was noted over the deltoid area. On September 30, 1963, surgical exploration was performed, and a number of enlarged lymph nodes were found surrounding and compressing portions of the left brachial plexus.

Gross examination revealed multiple enlarged lymph nodes up to 2.5 cm. in diameter, several of which were partially replaced by relatively firm gray-white tumor tissue. Microscopic sections revealed these areas to consist of metastatic malignant astrocytoma identical in its histology to that seen in the cerebral lesion (Figs. 4, 5, and 6). The diagnosis of grade IV astrocytoma (glioblastoma multiforme) with lymph node metastasis was substantiated by 2 prominent consultants.[2,3] The patient was given postoperative radiation therapy to the cervical spine and left brachial plexus areas.

A detailed medical examination including proctoscopy, intravenous pyelography, chest x-ray, barium enema, gastrointestinal series, and a variety of laboratory examinations have shown no evidence of metastatic or primary tumor in any other location.

DISCUSSION

The reasons for the infrequency of extracranial metastasis of cerebral neoplasms have been extensively studied and are well summarized in previous publications.[4,5] Possible explanations include unique anatomic characteristics of the central nervous system, the often rapidly fatal course of the disease, and immunologic factors in the host.

Metastasis occurs most often following craniotomy, and it appears likely that the tumor gains access to extracranial blood vessels and lymphatics through surgical disruption of natural barriers.[1] In the presently reported case, a craniotomy was performed, and following the operation an interval of six weeks was allowed for wound healing before radiation therapy was initiated. Rather intensive radiation therapy was then given, and there has been no recurrence of the cerebral symptoms ten months after the craniotomy.

SUMMARY

A patient with primary astrocytoma, grade IV, of the left temporal lobe involving the left occipital lobe and the tentorium was treated by surgery and radiation and later developed metastasis of identical tumor tissue to cervical lymph nodes. The case is unusual in that cervical lymph node metastasis occurred in spite of apparent good control of the primary cerebral tumor by surgery and radiation therapy, suggesting that lymphatic metastasis probably occurred at the time of surgery or in the interval before radiation therapy was initiated.

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Observations in Patients with Prosthetic Valve Replacement

Auscultatory and Phonocardiographic Findings

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UNTIL RECENT YEARS, little could be done surgically for patients with valvular heart disease. The numerous advances and refinements in surgical techniques, however, have favorably changed the situation, and now surgical treatment is feasible in a great number of patients so afflicted.

In 1961, Starr and associates[1,2] introduced a prosthetic valve for human implantation which has been widely used since. The valve consists of a Teflon ring for fixation to the valve orifice and a rigid metal cage which contains a silicone ball (Fig. 1A). The valve allows unidirectional flow of blood when the ball moves forward in the cage (Fig. 1B) and prevents regurgitation when the ball moves back against the Teflon ring (Fig. 1C). The construction of the valve is such that movement of the ball in either direction, that is, forward or backward, results in acoustical phenomena.[3]

Auscultatory and phonocardiographic observations in 7 patients in whom prosthetic valves have been implanted form the basis for this report.

MATERIALS AND METHODS

Eleven patients from the Louisiana State University medical and surgical services have undergone replacement of either the aortic or mitral valve with the Starr-Edwards prosthetic valve in the past eleven months. A total of 4 died variable periods of time after implantation of the prosthesis and are not included in this report. Of the remaining 7 patients, 4 had replacement of the mitral valve and 3 of the aortic valve. The table summarizes the clinical data in these cases.

Logarithmic and stethoscopic tracings were taken with a Sanborn Twin-Beam Phonocardiette, at a paper speed of 75 mm. per second. Records were made with the patient supine during midexpiration. The microphone was placed over the customary "valve areas" and, on occasion, wherever the sounds could best be reproduced. The electrocardiogram, indirect carotid pulse, and apex cardiogram[4] were used as reference tracings.

When a preoperative tracing was available, the postoperative recording was made under similar conditions with regard to intensity, locations of chest piece, sensitivity, and so forth for the purpose of comparison. The time interval between the surgical procedure and the recording of the postoperative tracing was variable.

Since the number of patients studied so far is relatively small, no attempt was made to draw conclusions from parameters such as duration of the Q-1 and 2-OS intervals.

CASE PRESENTATIONS AND RESULTS

Mitral valve. A Starr-Edwards prosthetic valve replaced the damaged mitral valve in 4 patients. In some (see table) aortic valve involvement was also present, but the predominant lesion was felt to be mitral valve disease. In one (case 4), mitral commissurotomy resulted in significant insufficiency of the valve and necessitated valvular replacement. In another (case 3), aortic valvuloplasty performed at the time of valvular replacement decreased the aortic regurgitation to some extent.

Case 1. A 34-year-old white male was known to have had rheumatic fever at age 6. Some time later his family was informed that "heart trouble" existed. He remained asymptomatic until about December 1962, when progressive symptoms of a cardiac nature eventually led to his admission in March 1963. There was cardiomegaly and auricular fibrillation. Auscultation revealed a holosystolic murmur best heard at the apex with

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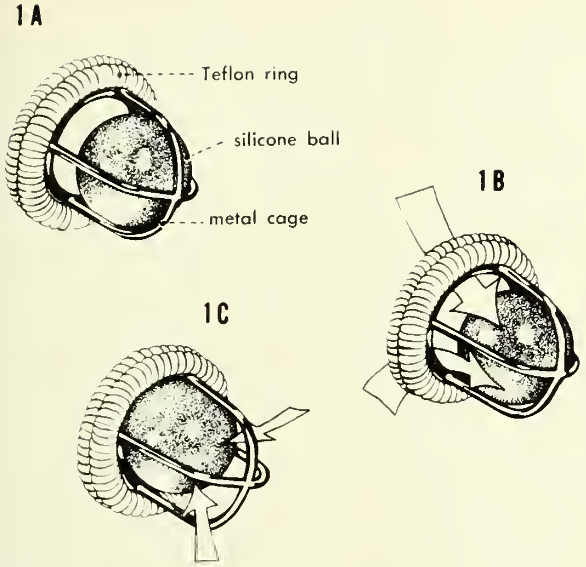

Fig. 1. (A) Diagram of Starr-Edwards valve prosthesis. (B and C) Ball-valve action of prosthesis allows unidirectional flow and accounts for predictable acoustic phenomena.

radiation over the entire precordium, a fairly loud third heart sound, and no diastolic murmurs. At surgery the mitral annulus was large and dilated; the mural leaflet and the chordae tendinae were thickened and shortened. Postoperatively, no murmurs were heard. The first sound was sharp and clicking (Fig. 2A). A sharp, clicking sound followed the second heart sound (Fig. 2B) and coincided with the onset of the rapid filling wave or 0-point of the apex cardiogram.

Case 2. This 33-year-old Negro male developed rheumatic fever at age 10 and had been asymptomatic until December 1962. The sudden onset of left-sided hemiplegia prompted his admission to Lake Charles Charity Hospital. Cardiomegaly, auricular fibrillation, and congestive heart failure were also noted. Basal systolic and diastolic murmurs as well as apical systolic and diastolic murmurs were heard. Following transfer to Charity Hospital in New Orleans, the patient underwent valve replacement in April 1963. The mitral valve was found extensively calcified and almost completely destroyed, and a moderate degree of aortic regurgitation was noted. Postoperatively, the first heart sound was accentuated, sharp, and clicking. The second sound was normal, and an "opening snap" was now heard (Fig. 2C). Although no murmurs could be heard at the apex, a systolic ejection murmur was present in the aortic area with radiation into the neck.

Case 3. This 25-year-old Negro male was referred to the Louisiana State University medical service in June 1963, for cardiac evaluation because of a history of progressive exertional dyspnea of several months' duration. There was a past history of rheumatic fever and a "heart murmur" at approximately age 15. Clinical examination revealed cardiomegaly and apical and basal systolic and diastolic murmurs. At surgery, some prolapse of the right coronary cusp was noted but the cusps were mobile and free of calcification. Plication of the aortic valve commissures decreased but did not totally prevent regurgitation. The mitral valve was severely calcified and deformed, but not stenotic, and allowed free regurgitation. Following mitral valve replacement, clinical examination disclosed the persistence of a to-and-fro murmur along the left sternal edge (Fig. 2D), a sharp, clicking first sound, and the "opening snap" of the prosthetic valve (Fig. 2E). No murmurs were heard at the apex.

Case 4. A 46-year-old Negro male began having progressive symptoms of cardiac involvement in 1953. He gave no history of rheumatic fever but had been rejected for service in the Armed Forces during World War II because of a "bad heart." The rather sudden onset of right lower quadrant pain, nausea and vomiting, and loose

CLINICAL DETAILS IN 7 PATIENTS WITH REPLACED VALVES

Case no.	*Age*	*Sex*	*Race*	*VDRL*	*Etiology*°	*Valve replaced*	*Associated lesions*
1	34	M	W	neg.	RF (6)	Mitral	None
2	33	M	N	neg.	RF (10)	Mitral	Aortic
3	25	M	N	neg.	RF (16)	Mitral	Aortic
4	46	M	N	neg.	RF NH	Mitral	Aortic?
5	57	M	N	neg.	?RF	Aortic	None
6	45	M	W	neg.	Unknown	Aortic	None
7	46	F	N	neg.	RF (13)	Aortic	None

°RF=Rheumatic fever; Figures in parenthesis=Age at onset; NH=No history

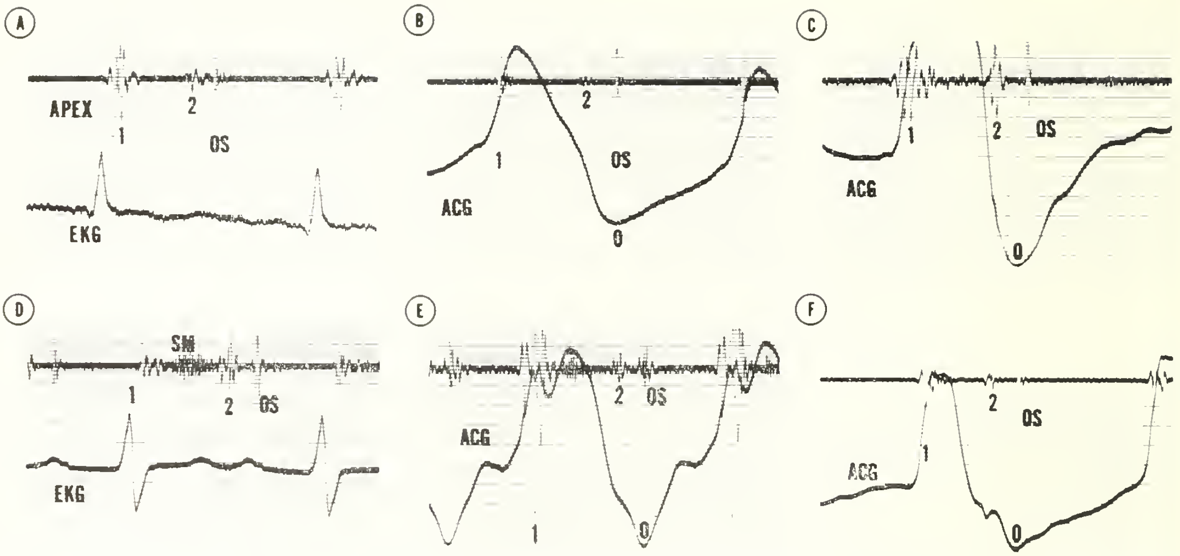

Fig. 2. Postoperative tracings in 4 patients with mitral valve replacement. In all patients, there is accentuation of first sound (1) and "opening snap" (OS). Valve has no effect on second sound (2). Systolic ejection murmur (SM) is recorded in D.

stools led to his admission to the surgical service in May 1963. On the ward, a more thorough examination revealed a variable irregularity of cardiac rate and rhythm (auricular flutter with varying A-V block), an apical diastolic thrill, a low-pitched, diastolic rumble, and an "opening snap." Six months later, cardiotomy revealed an organizing thrombus in the left auricular appendage. The mitral valve was stenotic, particularly in the subvalvular area, but pliable and mildly insufficient. No calcification was noted. Mild insufficiency of the aortic valve was an unexpected finding. A commissurotomy resulted in significant mitral insufficiency. Attempts to plicate the leaflets were unsuccessful and led to the implantation of a prosthetic valve. Postoperatively (Fig. 2F), no murmurs could be heard; the first sound was sharp and clicking, and the artificial valve "opening snap" could be heard over the entire precordium.

Aortic valve. In 3 patients the aortic valve was replaced with a Starr-Edwards prosthesis. None of these patients gave a history of syphilis or showed calcification of the ascending aorta or aortic valve on the chest roentgenogram. Serologic tests for syphilis (VDRL) were negative in all.

Case 5. A 57-year-old Negro male, known to have "heart trouble" since 1955, was first admitted to the hospital in April 1962, with moderately severe dyspnea at rest, orthopnea, pedal edema, and palpitation. A previous history of rheumatic fever or syphilis was denied. A to-and-fro murmur was present at the base of the heart and along the left sternal edge. He was subsequently hospitalized twice, and on his third admission replacement of the aortic valve was recommended. The patient was found to have a widely dilated aortic annulus with resulting failure of the cusps to coapt. Following valve implantation (Figs. 3A and 3B), the first heart sound was "split" at the apex, and a harsh, systolic ejection murmur was heard with maximal intensity in the aortic area and little radiation into the neck. The second heart sound was single, sharp, of short duration, and clicking in nature.

Case 6. This 46-year-old white male first became aware of the existence of a "heart murmur" while being treated for bronchopneumonia in 1958. He remained asymtomatic, however, until 1961 when he began to experience exertional dyspnea, nocturia, and pedal edema. He denied having rheumatic fever or syphilis. In August 1938, however, he developed acute gonorrheal urethritis and arthritis and was subsequently hospitalized several times for treatment of "chronic arthritis." Serologic tests for syphilis were consistently negative. On his last admission in August 1963, there was marked cardiomegaly, a systolic thrill over the base of the heart, and a to-and-fro murmur over the entire precordium. Exposure of the aortic valve through an incision in the ascending aorta disclosed a calcified aortic valve with marked dilation of the aortic annulus. The valve was excised and a prosthetic valve implanted. Postoperatively (Fig. 3C), the first heart sound was split, loud, and clicking at all valve areas. A short systolic ejection murmur was

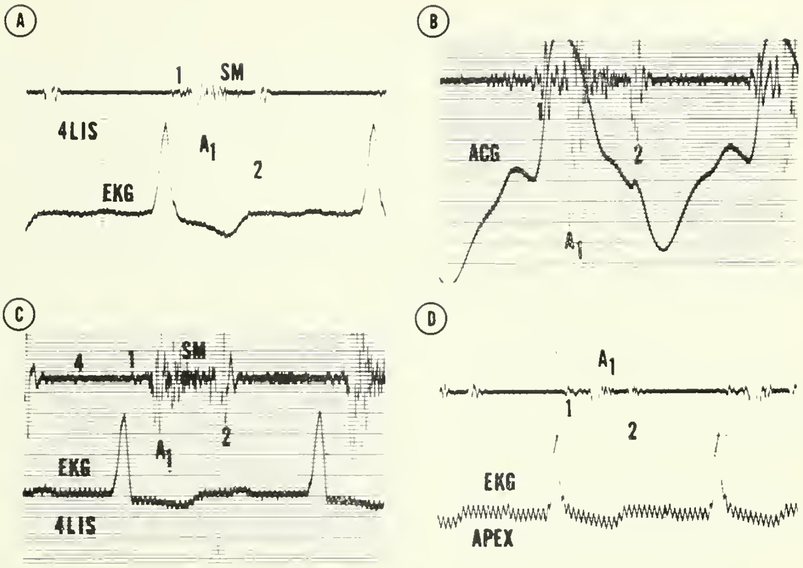

Fig. 3. Postoperative tracings in 3 patients with aortic valve replacement. First sound (1) followed by louder sound (A_1) in early systole, which represents aortic "opening snap." Second sound (2) is accentuated. In A and C, systolic ejection murmur (SM) persists.

heard along the left sternal edge and the aortic area. The second heart sound was sharp and clicking in character, and a fourth heart sound was also heard (Fig. 3C).

The negative history of rheumatic fever, the past history of gonorrheal disease, the negative serologic tests for syphilis, and the aortic valve involvement raised the possibility of healed gonorrheal endocarditis preoperatively. Microscopically, the valve showed fibrosis and calcification and no gonorrheal organisms. The etiology of the valvular disease remains unknown.

Case 7. The first admission to Charity Hospital for this 45-year-old Negro female was on September 4, 1963. She gave a history of rheumatic fever with cardiac involvement at age 13. Nevertheless, she remained totally asymptomatic until four months prior to hospitalization when she noted the onset of easy fatigability while performing usual domestic chores. Progression of symptoms prompted her physician to refer her to the hospital for treatment. On admission, cardiomegaly was noted and a to-and-fro murmur heard along the left sternal border. Surgical exposure of the valve two months later revealed a mobile valve without calcification. The aortic annulus was moderately dilated and the cusps failed to coapt. The murmur disappeared after valve replacement. The first heart sound was "split" at all valve areas (Fig. 3D). The second component was the loudest and had a clicking quality. The second heart sound was loud, short, and clicking in quality.

DISCUSSION

Implantation of the ball-valve prosthesis in either the mitral or aortic orifice results in predictable effects on heart sounds and murmurs.

Mitral valve. The prosthesis contributes significantly to the first heart sound. It is loud and snapping in all areas and is distinctly heard in the left posterior hemithorax. On occasion, it may be accompanied by a palpable shock in the apical region. The striking increase in the amplitude of the first sound occurs early and the initial vibrations were recorded in an average of 0.082 second after the Q wave of the electrocardiogram was inscribed. As would be expected, the prosthesis has no effect on the second heart sound.

Rise in pressure within the auricular cavity displaces the silicone ball forward against the apex of the valve cage allowing blood to flow into the left ventricle. This displacement results in a loud, snapping or clicking sound which can be heard over the entire precordium with maximal intensity along the left sternal edge and apex. It may be palpable in the areas of maximal intensity. It occurs an average of 0.105 second after the second heart sound and coincides with the onset of the rapid-filling wave or 0-point of the apex cardiogram. Hence, this sound is the prosthetic valve equivalent of the opening snap of the mitral valve.

The murmurs of mitral valve disease disappeared upon replacement of the valve. However, in those with associated aortic lesions, the basal murmurs persisted with one exception. An aortic lesion was not suspected clinically in case 4 prior to the surgical procedure. When the ventricular cavity was exposed, "mild" aortic regurgitation was unexpectedly encountered; however, no attempt was made to correct it. Therefore, it would appear that, following relief of mitral stenosis and the concomitant increase in the left ventricular stroke output, the aortic murmur would become clinically evident. The absence of signs (central and peripheral) of aortic insufficiency postoperatively militate against an aortic lesion of hemodynamic significance.

Aortic valve. Under usual circumstances, opening of the aortic valve is an abrupt yet relatively silent phenomenon. It occurs a brief period after the mitral valve closes (isovolumetric contraction) but not until the ventricular pressure exceeds the end-diastolic pressure in the aorta. Patients with a ball-valve prosthesis in the aortic orifice do not have a silent valve opening. The first heart sound is reduplicated, particularly along the left sternal edge and apex. The second component of the "split" sound is the loudest of the two and has a reverberating quality. As the stethoscope is moved toward the base of the heart, the first component becomes faint or inaudible and the second component becomes the preponderant or only sound. At this site, the "splitting" can be mistaken for a presystolic sound. With the assistance of the phonocardiogram, it was established that the second component occurred in an average of 0.08 (case 5), 0.075 (case 6), and 0.105 second (case 7) after the initial vibrations of the first sound (I-A_1 interval, Fig. 2). Hence, it would appear that this loud second component results from forward displacement of the silicone ball coincidental with left ventricular ejection (aortic "opening snap").

Similarly, the prosthetic valve intensifies the second sound in all valve areas but particularly over the base of the heart and midsternal area. The sound is sharp, short, and snapping in quality and may be accompanied by a palpable shock. Attempts to obtain reduplication of the second sound with respiration were unsuccessful.

Short, basal systolic ejection murmurs remained in patients 5 and 6 postoperatively. In all likelihood, these represent forward flow into a dilated aorta.

SUMMARY

1. The auscultatory and phonocardiographic findings in 7 patients with prosthetic replacement of either the mitral or aortic valve are presented.

2. In general, the findings in these patients fell into 2 categories: (a) those resulting from to-and-fro movement of the entrapped silicone ball within the metal cage and (b) those arising from associated valvular lesions or secondary to forward flow into a dilated aorta.

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GASTRIC FREEZING may control postgastrectomy stomal ulcers without the hazards of reoperation. In 24 of 33 patients, a single freeze controlled ulcer symptoms, depressed gastric secretion, and healed neostomal craters. Refreezing was successful in 8 of the remaining patients, and only the ninth required reoperation. The multiple episodes of freezing seemed to be beneficial and well tolerated. In 1 patient, perforation with a small dissection tract occurred and was healed by conservative treatment.

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Precordial Pulsations in Pericardial Effusion

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IT HAS BEEN A TEACHING for many years that patients having a pericardial effusion have what is called a "silent heart." "Silent heart" means that no pulsations are seen in the precordium. On auscultation the heart sounds are heard very distantly. The explanation for this observation is that the pericardial fluid is surrounding the heart muscle, and, therefore, pulsations and sounds are damped.

This has been stressed by standard textbooks of medicine such as Price,[1] Cecil,[2] and Davidson[3] and cardiology books such as those by Wood[4] and Freidberg.[5] Davidson[3] says, "In pericardial effusion the heart sounds become muffled," and Cecil[2] says, "On inspection the apex impulse is not visible when the effusion is large—on palpation vanishing apex impulse is one of the important signs of fluid collection in the pericardium and on auscultation, with large effusions, the heart sounds are usually distant and feeble." Price[1] writes: "Apex beat becomes weak and may disappear and the heart sounds are soft at the apex." Wood[4] notes, "The heart is usually quiet, the left ventricular impulse being barely perceptible and there being no lift over the right ventricle," and Freidberg[5] says, "Cardiac impulse is often weak and wavy or may disappear entirely. Similarly, the heart sounds are usually muffled and distant, especially when the patient is recumbent."

MATERIAL

The author has studied 14 cases of pericardial effusion from 1957 to 1963. In all of these patients, the diagnosis was proved by tapping the pericardial cavity. All 14 patients had an enlarged heart, feeble pulsations on screening, and low voltage with T-wave changes in the electrocardiogram. All had a gradual onset of symptoms and were not emergency admissions. It was presumed that all had a slowly developing pericardial effusion.

The "silent heart" sign was looked for before pericardial tapping in 6 patients. The notes were referred to in the other 8 patients after tapping proved the diagnosis. Six of the patients in the series showed a "silent heart" with no pulsations seen in the precordium and distant heart sounds. More interesting was the fact that the other 8 patients showed a "hyperdynamic heart." This term is used here to mean marked precordial pulsations in the second, third, and fourth left intercostal spaces. The lowermost and the outermost pulsations were seen in the fourth left intercostal space in or just outside the midclavicular line. These precordial pulsations were felt very well and would have been mistaken easily for a right ventricular hypertrophy. In all of these patients, the first and the second sounds were heard loudly on auscultation. In fact, this study was initiated because of a patient who was diagnosed as having pulmonary hypertension and turned out to have a massive pericardial effusion.

DISCUSSION

More than 50% of patients with pericardial effusion would show marked precordial pulsations which can be seen and felt easily. These patients have a loud first and second sound. The only way the author can explain these signs is by the presumption that in these patients the fluid collects in the dependent portion, and the heart, being lighter, floats on top of this fluid. This fact is confirmed by the clinical findings. If one percusses below and outside the precordial pulsations, there is invariably marked stony dullness of the fluid. In fact, if one diagnoses a congestive cardiac failure and the heart shows plenty of pulsations and loud heart sounds with no murmurs, one should look for absent venous pulsations in neck, pulsus paradoxus, and stony dullness below and outside the precordial pulsations. Many of these patients would also show a shifting dullness. Another significant finding is that at the apex the heart sounds are feeble, but in the fourth intercostal space and above the sounds become loud.

The above physical sign is not new. Freidberg[5] has mentioned that patients with pericardial effusion may show excessive pulsations, although

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rarely. What needs to be stressed is that in our country we see many more patients with pericardial effusion and the majority of them show excessive precordial pulsations.

SUMMARY

The usual teaching of a "silent heart" in pericardial effusion should be modified. Many pericardial effusion patients show excessive precordial pulsations and loud heart sounds over the precordium and distant sounds in the fifth intercostal space.

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CONGENITAL ATRESIA OR STENOSIS OF THE COLON must be corrected at once if the infant is to survive. A single procedure, relieving the obstruction and restoring continuity of the bowel, is preferable. Postoperative complications are fewer if the proximal distended colonic segment is resected. Intestinal obstruction can be suspected if meconium passage is atypical or none is passed. Progressive abdominal distension and vomiting usually follow. The distended intestinal loops may be visualized on a plain abdominal roentgenogram; use of a barium enema may increase the danger of perforation. Palpation of firm masses indicates meconium ileus rather than congenital obstruction.

Dehydration should be partially corrected and the abdomen decompressed by intermittent nasogastric suction before operation. Cross matching of blood and administration of antibiotics, vitamins K and C, and humidified oxygen are also important preoperative measures. At operation the abdomen should be explored thoroughly because multiple intestinal atresias are not uncommon. The proximal bowel is aspirated to complete decompression and isotonic saline injected into the distal segment to establish patency. Resection of the distended portion is recommended to prevent subsequent leakage or persistent ileus. Though a 1-stage procedure is best, colostomy or ileostomy may be done in an extremely ill infant, but intestinal continuity must be restored within two weeks because of the associated depletion of body fluid and electrolytes.

The infant's body temperature must be controlled both before and after operation, and nasogastric suction should be continued until active peristalsis has begun. Fluids and electrolytes should be given intravenously until the oral intake is sufficient, and antibiotics should continue for three to five days. The narrowed caliber of the intestine will increase with normal bowel movements. Congenital stenosis or atresia has been treated in 2 newborn infants, and 36 other cases have been reported in the literature.

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Tommy Bell

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Minneapolis

THE host of friends and admirers of Elexious Thompson Bell who long spoke endearingly of him as "Tommy" will be deeply grateful to him throughout the remainder of their lives. He contributed so much to knowledge and he taught so many of us through lectures, scientific articles, books, and personal conversation continuing with clear mind into his 84th year of life. What a beautiful heritage.

After teaching anatomy at the University of Missouri from 1902 to 1910 under the headship of the renowned anatomist, C. L. Jackson, he accepted a position in the department of anatomy at the University of Minnesota. A year later he transferred to the department of pathology of which he became head in 1920. He remained in that capacity until his retirement twenty-nine years later.

Dr. Bell was instrumental in attracting Dr. Richard E. Scammon to the department of anatomy in 1912. He and Dr. Scammon became roommates, and it was said that they were in no small way responsible for convincing George E. Vincent, new president of the University of Minnesota, that the School of Medicine should be reorganized. Both men actively participated in the project. As a part of the reorganization, Dr. Bell convinced his former chief, and then dean of the School of Medicine at the University of Missouri, C. M. Jackson, to accept the headship of the department of anatomy at the University of Minnesota in 1913. They also recommended E. P. Lyon of St. Louis University for the deanship of the School of Medicine. These 4 individuals, under the direction of President Vincent, expanded the School of Medicine from a teaching to a research and teaching institution.

More than 4,000 graduates of the School of Medicine, University of Minnesota, were fortunate enough to have been taught anatomy or pathology by Dr. Bell. There are few persons who have taught in medical schools as long and have won and maintained the confidence, admiration, respect, and love of students and graduates of medicine throughout the years as has Dr. Bell. He published a *Textbook of Pathology*, the first edition of which appeared in 1936. Its popularity has continued through 8 editions, the last in 1956. This book was adopted as the text in pathology in many schools of medicine. Only his health prevented him from preparing the manuscript for the ninth edition. "His success was attributable in part to 'horse sense' in research, to a friendly manner, to a fine sense of humor, to his intolerance of sham, and to his ability to counsel wisely. He had talent for adding a touch of drama to prosaic topics."[1]

After reaching retirement age in 1949, Dr. Bell was awarded the status of professor emeritus and was provided quarters in the department he had directed so long. There he continued to conduct research. He also served as consultant to the Veterans Administration Hospital in Minneapolis, where students and staff members alike cherished the opportunity of being taught by him. Few physicians who have achieved this status have lived to see, hear, and read expressions of appreciation by their co-workers.

In 1955, the Minnesota Pathological Society established an E. T. Bell Lectureship and unveiled his portrait. In 1956, he received the Distinguished Service Award of the Minnesota Chapter of the Society of Sigma Xi. In 1959, his alma mater, the University of Missouri, awarded the honorary degree of doctor of science. That year he was awarded the Minnesota Academy of Medicine Medal and the Banting Distinguished Service Medal of the American Diabetes Association.

In his 80th year, on January 26, 1961, Dr. Bell was honored by 200 colleagues and admirers on the occasion of the dedication of the nearly completed and completely equipped pathology laboratories at the University of Minnesota, which were named in his honor. A splendid profile listing his honors and publications was prepared by Lemen J. Wells in 1960.[1] In 1962, Dr. Reuben Berman prepared an excellent sketch of Dr. Bell's life and work with a recent photograph.[2] All of these and more Dr. Bell witnessed. He was continuously expressing appreciation for these various acts and denying that he was so deserving.

In 1914, Cecile Porcher and Dr. Bell were married. Their 2 children, Elizabeth (Mrs. Richard Ogle) and Robert, graduated from the University of Minnesota. As Dr. Bell's vision began to fail he was compelled to remain at home except for special occasions. His mind was so active and clear that he devised special visual equipment with which he could read but with considerable difficulty. Throughout the past few years, Mrs. Bell devoted her entire time to providing him with every possible comfort and encouragement.

As years advance the human mind turns frequently to the memories of childhood. The places where people were reared are still called home. Nothing is more pleasing than to go back and see the old haunts, the few survivors of the community, the cemetery, the old swimming hole, the school building, the church, all of which are much clearer in mind than more recent items and happenings. What a beautiful spirit Dr. and Mrs. Bell's granddaughter, Josephine Bell, exhibited in driving her grandparents to Dr. Bell's old haunts. In all his life he probably never had happier moments knowing of a life so well lived and approaching the scenes of his childhood when, without a second of warning, he was mortally injured in a head-on automobile collision for which Josephine was in no way responsible. The fires which Dr. Bell's teaching kindled in the lives of others will continue to burn brilliantly for generations.

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Memorials may be directed to the

E. T. Bell Fund
c/o Department of University Relations
University of Minnesota
Minneapolis, Minnesota 55455

Section on PAIN and DISTRESS

Editor: JOHN S. LUNDY, M.D., Seattle, Wash.; *Co-Editor:* RALPH M. TOVELL, M.D., West Hartford, Conn.; *Associate Editors:* ROBERT R. JONES, M.D., Rochester, Minn., JOSEPH A. GIBILISCO, D.D.S., Rochester, Minn., FLORENCE A. MCQUILLEN, C.R.N.A., Chicago, Ill.

The search for the truth about pain goes on and on. I have previously remarked, "Pain, pleasure, and the truth are relative things." This may not be the best expression, but in some ways it says what I mean as I watch the many and varied efforts to explain, diagnose, and treat patients with pain problems. The effort to understand this problem probably will result in a long list of causes for pain and distress. One may still hope for a simple explanation for pain, but, since that appears to be a long way off, let us continue to explore all possible avenues to the cause and cure or relief of its age-old curse. In this issue, Dr. Mathewson stresses tension, and he has good reason to do so. Dr. Gorrell tells the story as he sees it in the various countries in which he has worked around the world. He will continue to give more of his impressions on this subject in future issues of The Journal-Lancet. It is important that we present as many viewpoints as possible and invite others to help complete the picture.

JOHN S. LUNDY, M.D.

Pain Around the World

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It is an interesting experience to talk to physicians on 5 continents about pain in connective tissue. When asked about the occurrence of musculoskeletal pain, they usually answer either that (1) their countrymen are so stoical that they do not complain of or suffer from such pains, (2) they, the physicians, have mastered the recognition and treatment of such syndromes without problems, or (3) their patients have far more serious clinical problems than that of pain relief.

However, if you return several times on successive days, physicians from physical medicine, rehabilitation, general medicine, neurology and neurosurgery, and orthopedic surgery will begin to discuss cases of unusual peripheral pain of uncertain etiology, often failing to respond to conventional medical or surgical treatment, or both.

Certain trends are identical to those in the United States. Physicians in private practice dispense or inject vitamin B complex haphazardly. Patients referred to university hospitals for painful conditions almost always have been given prednisolone or other steroids. In the institutions, patients who have had conventional therapy but continue to complain of pain are referred for psychiatric evaluation.

By such referral, the physician assumes that no physical problem now exists, an assumption that can only be based on the belief that all pain syndromes are known and understood by him. Will such referrals iatrogenically implant seeds of doubt in the patient's mind as to the reliability of his own sensations? If so, the patient then will suffer from mental disturbances as well as from the original condition.

The most interesting group of patients can be found in the doctors and nurses on hospital staffs who suffer from painful conditions but are reluctant to ask for a full diagnostic and therapeutic spectrum for fear that they (1) will be ridiculed or (2) taken so seriously that major therapy, which they can refuse then only to their embarassment and possible failure to advance in the organization, will be recommended.

Here or abroad, specialists tend to follow set patterns. Many neurosurgeons prefer to treat only "intractable pain" but do not define exactly what is included in this group. Is it the pain or the patient that is intractable? The usual treatment advised is a chordotomy or other destructive lesion high in the central nervous system. One of the schools visited plans to use a stereotactic technique, now employed in the treatment of parkinsonian tremor, to create a lesion in the region of the spinothalamic fibers.

Many orthopedic surgeons still tend to consider bones and x-rays of bones primarily in back and extremity pains. A few urologists and gynecologists still believe in the old maxim that pain anywhere within two feet of the external urethra is due to chronic urethritis or prostatitis. Very few proctologists blame back pain on simple, uncomplicated, internal hemorrhoids.

The patient's best interest is not served by such fragmentation. The patient with low back pain, depending upon which specialist he consults or is referred to, may be treated with rest in bed, a brace, or passive and active motion; external heat may be applied, or there may be external chilling with ethyl chloride spray. Treatment also may include analgesic medication by mouth or injections of local anesthetic solutions into trigger points in the back; surgical procedures on a disk, bone, or ligament; urethral dilations; prostatic massage; or cervical cauterization. Obviously, all of these differing modes of treatment cannot be considered ideal if there is an ideal form of therapy for back pain. It is obvious that etiologic diagnosis must be clarified.

Dr. Ralph Waters, former chief of anesthesia at the University of Wisconsin, formulated a concept of pain therapy that is still valuable years later. He talked of the price that the patient paid for pain relief, whether the pain occurred during surgery, was postoperative or posttraumatic, or involved other pain syndromes. Pain always can be relieved by one technique or another. The simplest, easiest method should be employed first, for example, nonhabit-forming drugs of the analgesic group, heat, massage, and exercises, which are more physiologic than braces, body casts, and rest in bed. Procaine injection of trigger points and nerve blocks should be employed before surgical procedures are advised.

The type of pain must be analyzed as to location and radiation, factors increasing and decreasing the pain, and the type of distress, that is, deep, aching or sharp, and superficial. Taking the history is especially important when a physical lesion has been found to be sure that the lesion causes the pain rather than being coincidental. Congenital anomalies of the spine, kidney stones or gallstones, uterine retroversion, and so on often are silent for months or years.

If the patient is found to have an emotional problem, can the pain be logically blamed on it? Most hospitalized, severe psychiatric patients never complain of pain, even when severe organic disease is present. Everyone, physicians included, has emotional problems. If severe pain has been present for a long time, this too has an impact on the patient's personality which may be obvious.

A rather dramatic type of patient illustrates a few of these points: Each day on ward rounds through a tumor clinic a certain man was noted to be covering his face with his arms or turning away from the light and other patients. It was explained that he was an Anglo-Indian, a type who was shunned by the Indians and English alike. His wife had left him, taking 2 of their children and placing the other in an orphanage, and he was waiting only for a Dandy procedure, which involves cutting the sensory nerves to the side of face and neck, to relieve the agonizing pain which was necessitating meperidine injections every six hours. His left ear had been surgically removed for invasive carcinoma of the auricle. He had asked for attention only after the cancer had been present for six months, yet he was no stranger to skin neoplasms, having had a forehead tumor removed by radiation several years before. It was assumed that he was suffering from a suicide wish complicated by failure of the auricular area to heal and severe pain over the fifth cranial and upper cervical nerves.

He was blue-eyed and red-haired. His skin was very white. Two more small skin malignancies were noted on his face. On repeated questioning, it was learned that the pain was felt below the mastoid process rather than on the side of the face. The problem was discussed with the anesthesiologist who then blocked the second, third, and fourth cervical nerves in the neck with lidocaine hydrochloride (Xylocaine). The next morning, the patient was seen sitting up in bed, eyes bright, reading a mystery story. Even though he complained of some vague shoulder pain, it was obvious that the pain cycle had been broken up. The unhealed area was rebiopsied and found to be only infected, granulation tissue. He was dismissed two days later.

The Role of Muscle Relaxation in Surgical Analgesia

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It is well recognized that much of the pain accompanying tissue injury or disease results from muscle spasm in the affected area. Two familiar examples may be cited, one somatic and one visceral. An ankle sprain is usually painful only when tonus of the protective muscle groups is excessive. Peptic ulcer pain is largely a manifestation of pylorospasm. In the first instance, analgesia may be attained by employment of a mephencsin-like muscle relaxant supplemented by weak antalgics. In the second example, analgesia is accomplished by use of smooth muscle antispasmodics, and rarely by analgesic drugs as such.

Orthopedic surgeons are well aware of the value of central synaptic muscle relaxants. Internists are equally versed in the use of atropine-like drugs for relief of visceral pain. Anesthesiologists are perhaps less impressed by the fundamental value of relaxants in the production of surgical and obstetrical analgesia.

The traditional definition of general anesthesia as a composite of analgesia, hypnosis, and muscle relaxation often tends to minimize the importance of the latter. It is only when the interrelationship of analgesia with relaxation is emphasized that its significance is appreciated.

Surgical anesthesia is generally considered to be adequate if: (1) Surgical stimuli are not accompanied by evidences of stress, such as marked tachypnea, tachycardia, blood pressure changes, or sweating, (2) the patient is amnesic, and (3) muscular movements are either absent or insufficient to interfere with surgery. Where a single anesthetic agent is employed, these criteria are assumed to be merely different aspects of cortical and subcortical depression. Where the agent interferes peripherally with neuromuscular transmission, its analgesic powers may be magnified much beyond that anticipated from its central activity. The marked analgesic efficacy of diethyl ether is due in no small measure to its curare-like effect on skeletal muscle. Two salutary effects are obtained: (1) reduction of muscular response in the presence of pain and (2) relief of pain caused by skeletal muscle spasm.

It is interesting that this concept became well developed in the early days of curare and has since received less attention. The technique of nitrous oxide–curare anesthesia, as described by Waters (1944),[1] provided analgesia we would now consider barely adequate under many circumstances. However, satisfactory results were obtained with a minimum of central depression. With the concomitant use of thiopental sodium or small doses of narcotics, further analgesia could be provided; this regimen embodies the principal concepts of "balanced anesthesia."

Postoperative analgesia in curarized patients was soon appreciated, although the unpredictability of its duration of action made the drug difficult to control. Frequently the patient, although relatively free from pain at the operative site, would be distressingly short of breath from paresis of the respiratory musculature. This threat of inadequate ventilation has militated against the use of curariform drugs where respiration cannot be readily assisted. The use of long-acting suspensions of curare enjoyed only a brief period of acceptance; they were used for treatment of orthopedic conditions and for tetanus.

Succinylcholine has provided the anesthesiologist with a remarkably safe and controllable muscle relaxant. Where properly used, analgesic

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requirements of central depressants can be greatly reduced. With rare exceptions, moderate doses of the drug are promptly detoxified, and respiratory sequelae are uncommon. Again, it can be commonly observed that patients receiving succinylcholine in liberal amounts require minimal doses of narcotics postoperatively.

A number of useful inferences can be drawn from these observations:

1. Central synaptic muscle relaxants, that is, drugs which interfere with multisynaptic transmission in the cord and brainstem, may be employed to advantage as premedicants. It is probable that mephenesin-like tranquilizers owe much of their effect to this property.

2. Perhaps greater emphasis should be placed on the judicious use of muscle relaxants in the management of general anesthesia. This is of particular importance where the body cavities are entered.

3. Muscle relaxant properties of inhalation anesthetic agents could be more generally appreciated and utilized. Relatively few anesthetists raise the concentration of cyclopropane during brief periods where its relaxing effect could be used advantageously. The excellent relaxation afforded by methoxyflurane seems not to have impressed anesthesiologists as one might expect.

4. The importance of muscle spasm in postoperative pain should be considered more prominently when analgesics are prescribed. The use of musculoskeletal and visceral antispasmodics may be fully as valuable in many instances as drugs producing analgesia by central depression.

SUMMARY

Proper use of muscle relaxants is the fundamental approach to many problems of pain control. Analgesic drugs can often be used more effectively and in lesser dosage when supplemented by muscle relaxants.

REFERENCE

1. WATERS, R. M.: Nitrous oxide-oxygen and curare. Anesthesiology 5:618, 1944.

Book Reviews on Pain . . .

APPRAISAL OF CURRENT CONCEPTS IN ANESTHESIOLOGY, edited and assembled by JOHN ADRIANI, vol. 2, 178 pp., C. V. Mosby Co., St. Louis, Mo., 1964. $10.75

The preface to this second volume—vol. 1 appeared in 1961—gives the reason and purpose of this book as follows: "How to best scan the ever-increasing multitude of scientific periodicals and digest those which are pertinent in a manner meaningful to trainees perplexes program directors engaged in the training of medical specialists. During the past several years, in the Anesthesia Department of Charity Hospital of Louisiana, an attempt has been made to solve this problem by assigning staff members and trainees to review topics of timely interest concerning anesthesiology or allied subjects which appear in current journals. The reviewer prepares a summary which includes necessary statements concerning the early thinking on the assigned subject. To this is added a summary of current concepts appearing in recent journals over the past several years. These reviews are then multigraphed for distribution to fellow staff members.

"We believe that certain of these reviews would be of interest to trainees in programs other than our own or to the specialists in anesthesiology who are engaged in strictly clinical practice but who are unable to keep abreast of present-day developments and thinking by perusal of the literature, this being particularly true in phases of the specialty which are not part of their daily routine. Consequently, some of these reviews have been edited and assembled in this book. The subject matter in each review, in most cases, occupies an intermediate position between medical journals and textbooks. In other words, the material may be considered 'old' as far as current journals are concerned but 'new' in regard to inclusion in standard textbooks on anesthesiology. These presentations are not intended to be exhaustive reviews. They have been prepared by clinicians, are written in clinicians' language, and are intended primarily for clinicians. The subject matter is not directed toward research workers, those preparing exhaustive reviews, or those who are interested in completeness and in massive detail."

This book is a delight to have. It contains more real information per page than any book I have seen in anesthesia literature for years. The fairness toward the opinions of others expressed in recent literature is refreshing; although these writers may not agree with the authors' ideas, they are given a decent explanation and included. In spite of the high value of the book, it contains no explanation of the value of the motion of respiration on cardiac function. It is not clear why this action is excluded from this book and all other books on anesthesia when life itself is so dependent on it.

The book is indexed and is presented on good paper. It is easy to read. The book is convenient to handle and to have nearby, even in the operating room. It is a relief to review such a good book by such a reliable author.

JOHN S. LUNDY, M.D.
Chicago

Current Literature on Pain . . .

DUNDEE, J. W., LOVE, W. J., and MOORE, JAMES: *Alterations in response to somatic pain associated with anaesthesia. XV: Further studies with phenothiazine derivatives and similar drugs.* Brit. J. Anaesth. 35: 597-610 (Oct.) 1963.

"A pilot study showed that pain threshold and response readings were both significantly reduced 20 minutes after the intramuscular injection of both chlorpromazine 50 mg and promethazine 50 mg, the reduction being more marked with the latter drug. . . . However, at the end of 1 hour chlorpromazine showed evidence of slight analgesic activity whereas promethazine was still associated with a marked increase in sensitivity to pain.

"These findings prompted a further study of the effects of other phenothiazine derivatives on the response to somatic pain, with particular emphasis on the investigation of the variations in this action according to the time elapsing after injection. . . .

"Sixteen compounds are included in this investigation of which fourteen are true phenothiazine derivatives . . . and the remainder are closely related drugs. . . . Phenothiazine derivatives studied: Promazine, Chlorpromazine, Triflupromazine, Propiomazine, Promethazine, Trimeprazine, Trifluperazine, Thiethylperazine, Perphenazine, Fluphenazine, Pipamazine. . . . Compounds closely related chemically to phenothiazine derivatives: Prothipendyl (and) Chlorprothixene. . . .

"All observations were carried out in the immediate pre-operative period on fit female patients who were admitted to a gynaecological unit for uterine curettage or similar minor procedures. . . . An increased sensitivity to somatic pain occurred 20 minutes after the injection of all drugs. . . . The pattern of changes with each drug was much more consistent 1 hour after injection and they have been divided into three groups based on the average findings at this time. (1) Slight analgesic action 1 hour after administration. (2) Slight antanalgesic action 1 hour after administration. (3) Significant antanalgesic action 1 hour after administration. From the limited data available it would appear that chlorpromazine, prothipendyl, and chlorprothixene fit into the first group. . . . The analgesia indices, calculated from observations made 60-90 minutes after administration of the drugs, also follow the same pattern. . . .

"Compounds with a piperazine side chain are generally effective in smaller dosage than comparable ones with a dimethyl-amino-propyl radical. The increasing potency resulting from fluorination is also demonstrated. . . .

"There is no statistical difference between the analgesic action of the chlorinated and corresponding fluorinated compounds in any of the three groups. . . . All three groups of phenothiazines produce a comparable degree of antanalgesia at 20 minutes after their intramuscular injection. However, the dimethyl-amino compounds differ significantly from the others in having an analgesic action 1 hour after injection. There is no consistent difference between compounds with methyl-piperazine-propyl and hydroxyethyl-piperazine-propyl side chains. . . .

"While the limited number of studies with different amounts of the same drug showed that the size of the dose quantitatively affected the action of phenothiazine derivatives, it did not fundamentally alter the pattern of the antanalgesic-analgesic response. Nevertheless, dosage must also be taken into account when considering the clinical applications of this study. Failure to appreciate this can be another cause for contradictory data appearing in the literature."

DE JONG, R. H. and CULLEN, S. C.: *Theoretical aspects of pain: bizarre pain phenomena during low spinal anesthesia.* Anesthesiology 24:628-635 (Sept.-Oct.) 1963.

"At times . . . certain bizarre pain phenomena of the lower extremity are encountered during low spinal block (to a dermatomal level of T-10 or lower) which cannot be satisfactorily explained on the basis of current concepts of anatomical pathways of pain. . . .

"Such pain may occur almost immediately following spinal block in patients suffering from causalgia or phantom limb. It may occur after a remarkably constant time interval of tourniquet compression. And finally it may be noted only when a large nerve trunk, such as the sciatic nerve, is manipulated. Although of seemingly different origin, the pain pattern is remarkably similar under all these circumstances.

"It is a deep, burning, poorly localized, diffuse, and uncomfortable ache. This response characterizes the pain as being transmitted by small, slow, amyelinated C-fibers. With an adequate cutaneous level of spinal analgesia, complete interruption of all pain-carrying fibers below this level might be expected. However, since pain under certain uncommon circumstances still can be perceived, it seems most probable that some pain fibers enter the cord above the level of block.

"Laboratory and clinical evidence strongly points to the presence of peripheral afferent amyelinated pain-carrying fibers from the extremities in the sympathetic trunks. Such fibers use the trunks (the 'paraspinal pathways') to gain access to the spinal cord at a more rostral segmental level via white communicating rami. These fibers are ordinarily blocked by impulses from faster fiber groups and are therefore not consciously perceived. Only when the faster fibers are blocked, as by tourniquet compression, or when all slow fibers are stimulated simultaneously, as by direct manipulation of the sciatic nerve, is their message able to gain access to the central nervous system. Under these circumstances a lumbar sympathetic block or a raised spinal segmental level may provide complete relief of pain."

THOMAS, E.: *Pre- and postoperative minor discomforts.* Brit. J. Anaesth. 35:327-329 (May) 1963.

"It was decided to investigate the possibilities of eliminating some of the physical discomforts which patients may suffer before and after operation, in particular those not directly associated with the operative procedure. . . . The investigation was not concerned with emotional disturbances. . . . One hundred female patients, whose ages ranged from 16 to 70 years, were interviewed on the days preceding and following operation. They were questioned about the procedures (other than the operation) which had been found most unpleasant. The operation in all patients was that of gynaecological examination under anaesthesia, followed by cautery of the uterine cervix. . . .

"The complaints are summarized as follows: (a) Objection to the passage of the catheter in the ward: This practice has now been abandoned. (b) The embarrassment of preparation for pelvic procedures. No solution has been found. (c) The long wait before operation. No complete solution has been found. . . . (d) Close proximity of patients having minor operations with those undergoing major procedures; this has now been remedied."

SWERDLOW, MARK: *The relief of pain after abdominal surgery.* Anesth. & Analg. 42:588-595 (Sept.-Oct.) 1963.

"The past 100 years have seen much progress in anaesthesia. Unfortunately the same cannot be said for the relief of pain after operation. . . . It is important to distinguish between pain, discomfort, and anxiety. . . . Innumerable methods have been suggested to produce postoperative pain relief. . . . For the general run of cases we must, with our present knowledge, continue to rely on the injection of narcotic analgesic drugs. . . . The relief of postoperative pain merits much more attention than it has received in the past."

CHERNEY, L. S.: *Tetracaine hydroiodide, a long-lasting local anesthetic agent for the relief of postoperative pain.* Anesth. & Analg. 42:477-481 (July-Aug.) 1963.

"The present report presents a technic for lessening postoperative pain. The most common cause of postoperative pain is muscle pull against the suture line. . . . My aim was to find a material of low water solubility that could be used for topical anesthesia. This agent could be sprinkled as a powder in the surgical wound prior to closing, or injected as a suspension in water, either as a nerve block or under the fascia along the line of closure.

"After trying many salts of tetracaine (pontocaine) and procaine, tetracaine hydroiodide (THI) was discovered to be a stable salt of low solubility. . . THI, either plain or coated with aluminum monostearate, was used with gratifying results in 117 patients who had had major abdominal operations."

DUNDEE, J. W., and LOVE, W. J.: *Alterations in response to somatic pain associated with anaesthesia. XIV: Effects of subnarcotic concentrations of methoxyflurane.* Brit. J. Anaesth. 35:301-304 (May) 1963.

"The effect of subnarcotic concentrations of the commonly used inhalation anaesthetics on response to somatic pain has been reported. . . . Recently, Artusio et al (1960) described their clinical experiences with a new volatile agent, methoxyflurane (Penthrane) in man, and Hudon (1961) and Wyant, Chang, and Rapicavoli (1961) have reported on its pharmacology. . . . This paper reports analgesimetry studies during the inhalation of this agent. . . . All observations were carried out on fit unpremedicated subjects, either departmental colleagues or medical students. . . . The inhalation of subnarcotic concentrations of methoxyflurane does not result in a decreased sensitivity to somatic pain."

THROMBOANGIITIS OBLITERANS is a chronic, occlusive arterial disease, distinct from arteriosclerosis obliterans. The survival rate among patients with thromboangiitis obliterans is better than among those with arteriosclerosis obliterans, but more patients with thromboangiitis obliterans suffer ischemic ulceration or gangrene of extremities. Young men are primarily affected by thromboangiitis obliterans, with recurrence or exacerbation usually related to smoking. The incidence of amputation is low among patients who stop smoking. As in arteriosclerosis obliterans, coronary heart disease is the commonest cause of death, but it occurs oftener and earlier in patients with thromboangiitis obliterans. Actuarial calculation revealed that the estimated ten-year survival rate of patients with thromboangiitis obliterans was similar to that of a group of persons in the general population. Patients with arteriosclerosis obliterans had a much lower estimated ten-year survival rate.

JAMES R. MC PHERSON, M.D., JOHN L. JUERGENS, M.D., and RAY W. GIFFORD, JR., M.D., Mayo Clinic and Foundation, Rochester, Minn. Ann. intern. Med. 59:288-296, 1963.

E. J. Huenekens, M.D.

MAX SEHAM, M.D.

Minneapolis

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At 78 years young, Dr. Edgar J. Huenekens continues to live a rich and productive life. After serving the children of the Minneapolis area over half a century, he has taken down his shingle covered with deserved medals.

Although no longer in private practice, Ed Huenekens vigorously continues to serve his community. I asked Ed why he doesn't settle back and take it easy now? "Stay home and rust out?" he asked with some disgust.

Fortunately for our community, Dr. Huenekens was accepted as an intern at the Minneapolis General Hospital in 1908 after graduation with honors from St. Louis University Medical School. While serving his internship he was exposed to the salesmanship of Dr. J. P. Sedgwick, Minnesota's first full-time head of pediatrics, who was seeking a bright young man to become his first fellow. Although Dr. Huenekens admired and was greatly influenced by Sedgwick, he decided upon a year in the German centers under the world-renowned pediatricians Drs. Finkelstein and Czerny. After a year of postgraduate training, he returned to Minneapolis to enter private practice.

The going was rough, as it was for all who dared to pioneer in a medical specialty. Ideals and dedication were paramount to financial success. A young doctor hung up his shingle to emulate the great Dr. Wm. Osler rather than the tycoon, James J. Hill. With the best training at that time, plus diagnostic acumen and intuitive understanding of human nature, Ed Huenekens was destined to become an outstanding pediatrician. Very early he acquired the art of caring for a sick child. To him it was just as important to know "what kind of a patient has the disease as what kind of a disease the patient has."

While recognizing the value of laboratory procedures in diagnosis, he was not led astray by them. He believes that too many routine laboratory tests can be traumatic to children, and he deplores some of today's "dragnet methods" which unfortunately have superseded thorough history-taking, observation, and the use of the 5 senses.

Pediatrics and Dr. Huenekens were made for each other. Many times he told me he was glad that he had chosen a specialty with the greatest opportunity to practice preventive medicine. It followed that Dr. Huenekens would make his first contribution to public health as director of the Minneapolis Infant Welfare Association. To this organization he gave his leadership and executive skill for twenty years. He was the first in the country to introduce treatment of behavior disorders in infants as well as in baby clinics. He emphasized early detection and treatment.

His fight against polio began in 1946 during the most severe epidemic to ever strike Minneapolis. The city was in panic. The National Foun-

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MAX SEHAM *is an emeritus professor of clinical pediatrics at the University of Minnesota School of Medicine.*

dation for Infantile Paralysis was feuding with Sister Kenny for local control. Mayor Humphrey urged Dr. Huenekens, a member of the Board of Public Welfare, to head an Emergency Polio Committee. Dr. Huenekens accepted the challenge and quickly effected an integrated community program for saving lives. A letter from the Northwestern Pediatric Society dated Nov. 18, 1946, expresses the gratitude of the members to Dr. Huenekens for his dedicated leadership. It reads:

"In the Northwest's most severe and disastrous epidemic of poliomyelitis, the problems related to it were complicated by the hysterical reactions of the general public and the marked division which occurred among the various groups interested in the care of the patients. These secondary problems might have assumed priority except for the forceful and courageous stand on basic issues which you took as Chairman of the Mayor's Committee on Poliomyelitis. Largely through your efforts the focus of attention was maintained on the care and management of the patient. Not only the Twin Cities but the state at large owe you a real debt of gratitude for the masterful way in which you managed the many intricate problems associated with the epidemic."

It was 1948 when Donald Dayton, chairman of the Lay Board of Directors of the Kenny Institute, persuaded Dr. Huenekens to become medical director of that institute. Ed accepted upon condition that he have complete control; "not 99.4% but 100%" was his characteristic stipulation. When the agreement was final, a smiling Mr. Dayton announced, "Today is my birthday. Your acceptance is the best present anyone could give me."

After seventeen years of nonpolitical service on the Board of Public Welfare, Dr. Huenekens decided that it was time for another colleague to represent the medical profession. His respite was short-lived, for in 1962 Mayor Naftalin persuaded him that his experience and talent were needed for another emergency. Dr. Huenekens couldn't say no. Dr. Huenekens also served from 1955 to 1964 on the Minnesota State Board of Health.

In addition to his work in public welfare, Dr. Huenekens has been active in the field of education. In 1910 he was appointed assistant in the Department of Medicine at the University of Minnesota School of Medicine. In 1912 he transferred to the Department of Pediatrics where he remained until 1953. At that time Dr. Huenekens had reached retirement age and was retired as clinical professor of pediatrics. He is now emeritus professor of pediatrics.

Dr. E. J. Huenekens is a "compleat physician" in the hippocratic sense. A perseverance of purpose for what he considers the best for public welfare, not aggressive for the sake of personal aggrandizement, he has more than repaid the debt he owes the community for the success he has had. For all this his colleagues and the people have expressed their appreciation by bestowing upon him their most valued recognitions. In 1953 he received the Distinguished Community Service award from the Community Chest. In 1954 he received the St. Barnabas Bowl award as the outstanding member of the Hennepin County Medical Society, and he was awarded the F. E. Harrington award for outstanding service in public health in 1957.

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ANTON F. SPRAITZ, JR., M.D., JOHN S. WELCH, M.D., and ROBERT B. WILSON, M.D., Mayo Clinic and Foundation, Rochester, Minn. Amer. J. Obstet. Gynec. 87:877-881, 1963.

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Book Reviews . . .

Color Atlas of Pathology: Central Nervous System

by CHARLES F. GESCHICKTER *and* ALBERT CANNON, *vol. 3, 384 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $25*

Except for the first chapter, which deals with the neuroanatomical basis for neuropathology, the book is organized into the conventional pathological categories of vascular disease, infections, neoplasms, and so on. Each chapter begins with a descriptive survey of the major diseases in each group, with a few sentences concerning their symptomatology and main pathological features. Diagrams and x-rays also are utilized to advantage. However, the outstanding feature of this book is the profusion of high-quality color plates used to illustrate gross and microscopic pathology. These are accompanied by a brief clinical history and descriptions of the pathological material depicted on the same page. Many of the neuropathological curiosities also are illustrated.

While no photographs can entirely replace the actual observance and palpation of gross lesions and although micrographs can never convey the comprehensive information that can be gained from studying an actual microscopic section, this book would seem to come as close as possible to this ideal. It should be in the library of every pathologist and all of those specialists whose interest or practice is particularly related to the nervous system.

ERLAND R. NELSON, M.D., PH.D.
Minneapolis

Tuberculosis in Children

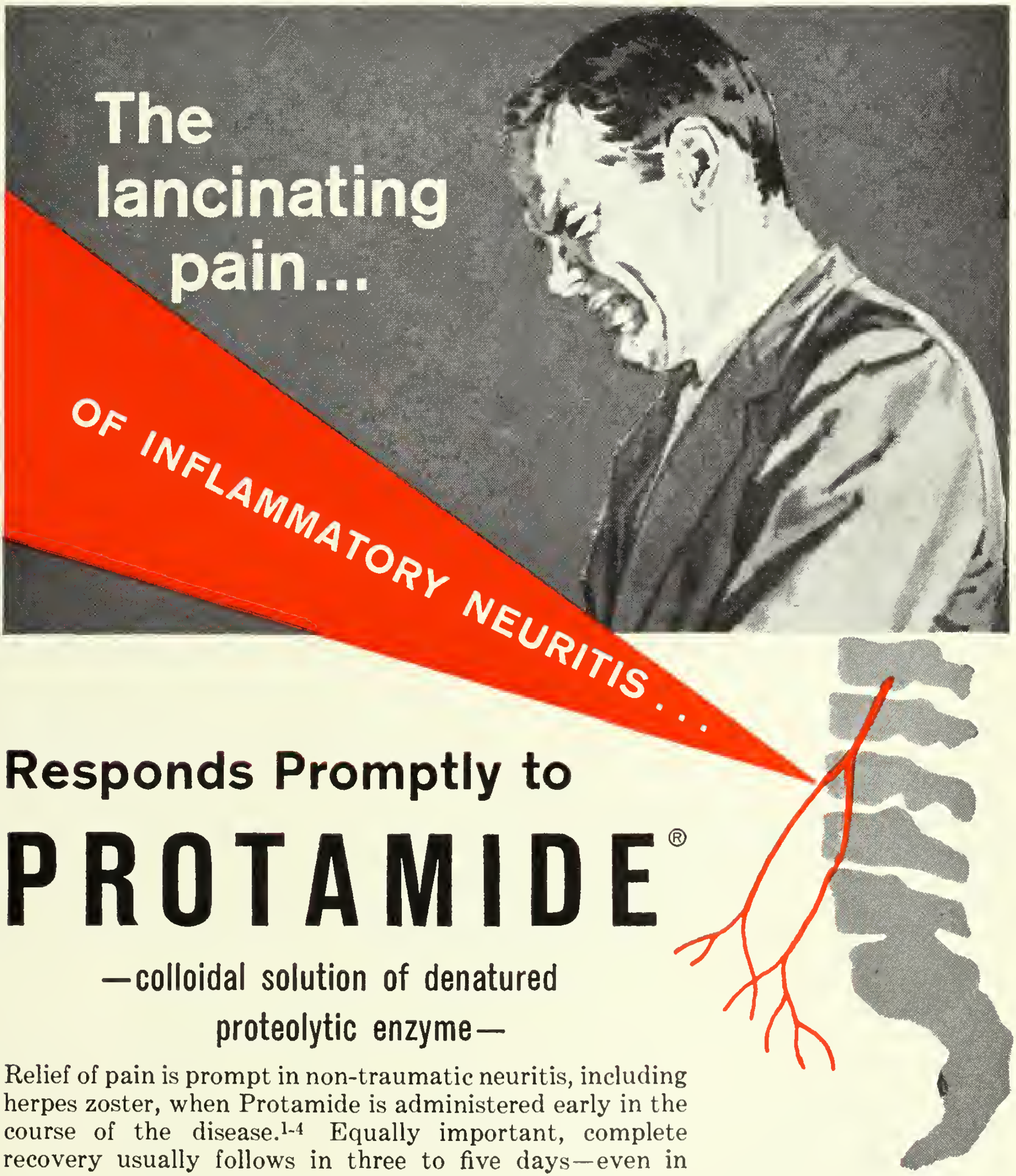
by EDITH M. LINCOLN *and* EDWARD M. SEWELL, *327 pp., ill., McGraw-Hill Book Co., Inc., New York City, 1963. $12.95*

The senior author of this volume is an expert in pediatrics, having founded the chest clinic in the Children's Medical Service of Bellevue Hospital, New York, in 1922. She is an adjunct professor of pediatrics at New York University School of Medicine. The junior author, Dr. Sewell, is in charge of the chest clinic of the Children's Hospital in Philadelphia. They combine their talents in this volume to bring to the practicing physician the problems of tuberculosis in children and the means of prevention and control.

Today tuberculosis is still an important disease. Unfortunately, for too many years we have worshipped the death rate rather than the infection rate of tuberculosis. With the advent of chemotherapy, the infection rate and the number of sanatorium beds have both decreased. The infection rate, however, remains high and tuberculosis still kills 1 person every sixty minutes.

Although incidence of tuberculosis in children is less than it was years ago, it remains a devastating disease for the child. Chemotherapy has played a decisive role in decreasing the mortality rate of tuberculosis in children and to some extent has been effective in temporarily converting the recent positive tuberculin reactor back to a negative reaction. Prevention still remains the key to success, however, in the control of tuberculosis in children. This is best done by routine tuberculin testing with x-ray filming of the positive reactors. In those

(Continued on page 18A)



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References: 1. Baker, A. G.: Penn. Med. J. *63*:697 (May) 1960. 2. Smith, R. T.: New York Med. (Aug. 20) 1952, pp. 16-19. 3. Smith, R. T.: Med. Clin. N. Amer. (Mar.) 1957. 4. Lehrer, H. W.; Lehrer, H. G., and Lehrer, D. R.: Northw. Med. (Nov.) 1955. 5. Sforzolini, G. S.: Arch. Ophthal. *62*:381 (Sept.) 1959. 6. Gile, J. H.: W. Virginia Med. J. *59*:120-122 (May) 1963.

(Continued from page 16A)

instances in which the child has converted within a short period of time, a follow-up study should be made of all contacts of this child.

The term, eradication of tuberculosis, is used in this volume. I believe that the recent emphasis on eradication of tuberculosis is premature. Eradication of tuberculosis will only occur when we have definitive means by which we can destroy the tubercle bacillus so that no positive tuberculin reactor shall be present in man or animal throughout the world. It would serve the public better if we emphasize the control of tuberculosis and then hope by control to reach some degree of eradication.

The authors bring to the physician a vast experience in childhood tuberculosis. This book is most needed at the present time, when few pediatricians or internists see this form of tuberculosis. The book is adequate, well illustrated, and readable. For all who are interested in this disease, this is imperative reading.

JOHN F. BRIGGS, M.D.
St. Paul

Medical Pharmacology: Principles and Concepts

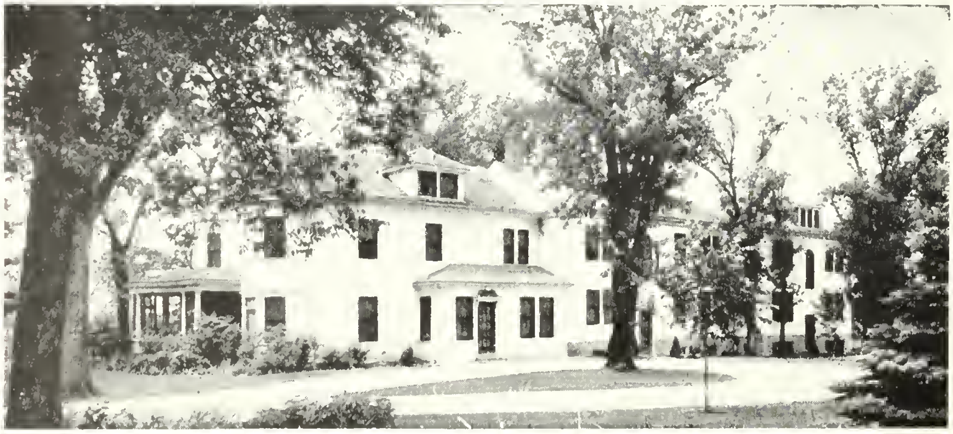
edited by ANDRES GOTH, *2nd ed., 585 pp., ill., C. V. Mosby Co., St. Louis, Mo., 1964. $11.75*

Dr. Goth, professor and chairman of the department of pharmacology, University of Texas Southwestern Medical School, has written this book primarily for students and practitioners. The emphasis is on principles and concepts rather than factual information. The author has tried to retain the essential facts, but he has eliminated the repetitious discussion of specific drugs.

This edition has been carefully revised to include the criticisms and comments of the many teachers of pharmacology who were interested in the first edition. It has attempted to incorporate the newer concepts and the mode of action of sympathomimetic agents, including a discussion on the release and metabolism of catecholamines and adrenergic blocking agents. This edition also includes an elaborate treatment of drug addiction and the problems of selection of antibiotics.

The book differs from most textbooks in pharmacology in that there is very little general or specific information on the numerous individual preparations on the market. The chapter on digitalis glycerides, for example, discusses the general concept of digitalis effect, the effect of digitalis on the normal and failing heart, the fundamental reaction of heart muscle to digitalis, and the extracardiac effects. It concludes with a brief discussion of digitalis and membrane transport and the metabolism of the various agents and an excellent discussion of the clinical pharmacology including selection of digitalis preparations, clinical toxicity, and therapeutic aims of the substances.

The book has been kept concise, so it should be an excellent guide for the active practitioner who is interested in the modern concepts in pharmacology. The beginning medical student will need supplementary material, particularly information on individual preparations with which he will come in contact. Although chemical formulas are found on almost every page, one does not become overwhelmed by the chemical details. The



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graphs and tables on the pharmacodynamic effects of the various agents are few but carefully chosen. The historical aspect, although extremely interesting to both teachers and students, has been minimized.

I anticipate that this volume will be used in many medical school courses in pharmacology. For the active practitioner, it provides modern concepts in pharmacodynamics.

B. DE BOER, PH.D.
Grand Forks

A Handbook of Radiography

by JOHN A. ROSS, R. W. GALLAWAY, *and* R. G. REID, *3rd ed., 220 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $7*

The Handbook of Radiography is a concisely written and clearly illustrated book, small in size and conveniently arranged for rapid reference. The author attempted and succeeded in condensing into a compact volume data essential for the everyday reference of the student in radiography. In a few moments, the essential knowledge may be obtained for guidance in the everyday work in the x-ray department. Concise summary of the physical principle behind radiographic images and reproduction is available. Excellent summaries of landmarks of major areas and radiological technique for different parts are clearly illustrated by concise text and accurate line drawings. It is surprising that such completeness can be obtained in such little space.

This book can be recommended as an excellent reference handbook for students, especially those in the early stage of training. We would hope that the radiographer and radiologist will realize the admitted restriction of material content by the authors and use this book as it is intended, as a handbook for quick reference and not as the final authority on any of the subjects covered.

BARNARD HALL, M.D.
St. Paul

Kinesiology and Applied Anatomy: The Science of Human Movement

by PHILIP J. RASCH *and* ROGER K. BURKE, *2nd ed., 503 pp., ill., Lea & Febiger, Philadelphia, 1963. $7.50*

Kinesiology is the science of movement of the body, and it combines anatomy, structure, physiology, and function. It is interesting that kinesiology was talked about during the time of Aristotle; he was especially interested in the movement of animals, their changing of positions, and their actions. Archimedes, another Greek, was interested in kinesiology but mostly from the hydrostatic angle; he was concerned with kinesiology governing floating bodies, as in swimming.

This book is very well written and well organized, and, as the author states, it is designed to serve 3 broad areas of interest, those of athletics, physical education, and physical medicine and rehabilitation. It can be used by coaches and trainers in teaching motor skills. The book is well detailed, so it can be used by students in anatomy courses. The extensive illustrations are practical and easy to understand. It is important for the physiotherapist to know what the normal reaction would be in order to analyze the basic functions before a therapeutic program can be laid out to improve function of the body or any limb.

The book, especially "the history of kinesiology," was

(Continued on page 20A)

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(Continued from page 19A)

very interesting, and certainly the rest of the chapters are equally important. Some of the chapters are more or less repetition of anatomy books, but they are more concise and practical in their application. The section on striated muscle has a very good discourse on the nutrition, actions, functions, and movements of muscle, whether they are slow or fast movements, necessitating quick changes in position. The physiology of muscular contraction and the chemistry that occurs during contractions of the muscle, together with the conditions that occur following cramps and spasticity, have been brought up to date. Methods of studying muscular action are given in some detail. The neuron control of the muscles and their actions are well laid out.

A very interesting chapter is "Center of gravity and equilibrium"; how the muscles work in performing these duties is studied. For those who are interested in athletic injuries, there are detailed drawings or photographs showing movement of the shoulder girdle and the shoulder joint, elbow and radio-ulnar joints, wrist and hand, pelvic girdle, and hip joints. The knee, with its actions and functional changes caused by trauma, and exercises or training facilities which will improve the function of this joint are discussed and described in simple, well-understood terms.

The last chapter on sports and games is especially important to those who are coaching football, basketball, track, baseball, and other sports that need a warming-up period, use of starting positions, or movements with stabilization. All of these movements have a bearing upon playing a better game.

E. N. NELSON, M.D.
Minneapolis

Clinical Disorders of Iron Metabolism

by ERNEST BEUTLER, VIRGIL F. FAIRBANKS, *and* JOHN L. FAHEY, *267 pp., ill., Grune & Stratton, Inc., New York City, 1963. $8.75*

In this small, comprehensive volume, the author successfully brings together current knowledge about iron in health and disease. Although not aimed at the basic scientist, it successfully documents up-to-date fundamental research and the newer techniques of investigation. Emphasis is more on practical application than on research methods and theoretical considerations.

Usefulness of blood and marrow morphology in diagnosis is well emphasized. Clinical syndromes of iron deficiency are presented in some detail. In general, the description is excellent. The section on therapy appropriately condemns the use of multiple hematopoietic factor preparations for treating anemia. It also clarifies the overdone claims of iron intolerance and debunks inflated claims for many highly promoted iron preparations which, in fact, are no better than simpler, less expensive iron pills.

Finally, there is a section on iron-storage disease which is straightforward in description of the various syndromes and their management.

Organization is good, and language is simple and effective, making for easy readability. For those who wish to read further the bibliography is extensive and current. The volume should be of value to students, residents, and practicing physicians.

ROBERT A. GREEN, M.D.
Minneapolis

News Briefs . . .

Minnesota

DR. MILTON P. REISER has opened offices for the practice of urology, Doctors Building, Minneapolis.

* * * *

DR. ARTHUR M. OLSEN of the Mayo Clinic, Rochester, has been named president of the Minnesota Tuberculosis and Health Association, succeeding Dr. Herman Kleinman who died Feb. 29.

* * * *

DR. DALE EICHELBERGER, a 1960 University of Minnesota Medical School graduate, has joined Dr. Roger Hallgren in practice at Belle Plaine. He interned at Los Angeles County Harbor General Hospital, Torrance, Calif., and recently was discharged after two years of Navy medical service. Dr. Eichelberger is a native of Montevideo.

* * * *

DR. LEON A. BJERKE of the Hawley Medical Center was to open a practice in Wahpeton, N.D., in the latter part of June. Dr. Bjerke has been with the center for three years, and his announced move will leave the community without a doctor.

* * * *

DR. CHARLES L. SHERMAN of Luverne was honored recently at ceremonies for a new addition to the Community Hospital. The addition is dedicated to the 87-year-old doctor who first began practice in Luverne in 1904. For twenty-five years before construction of the hospital, Dr. Sherman maintained a private hospital in the community; he later served as administrator when that facility was purchased by the city. Dr. Sherman also was instrumental in organizing a tuberculosis sanitarium in Worthington and was its first president in 1915.

* * * *

DR. AUSTIN M. MC CARTHY of Willmar was appointed to the State Board of Medical Examiners recently to complete the term of Dr. Irwin L. Oliver of Graceville who resigned. Dr. James C. Cain of the Mayo Clinic was reappointed to the board. Dr. McCarthy is a graduate of the University of Minnesota Medical School. He interned at Minneapolis General Hospital and was a resident surgeon there before moving to Willmar in 1948. Associated with the Willmar Clinic, he also has served as chief of staff and chief of surgery at Rice Memorial Hospital, Willmar.

* * * *

DR. ROLAND DUMONCEAUX has begun private practice in Hallock. He received his medical degree from the University of Manitoba in 1959 and practiced at Selkirk, Manitoba.

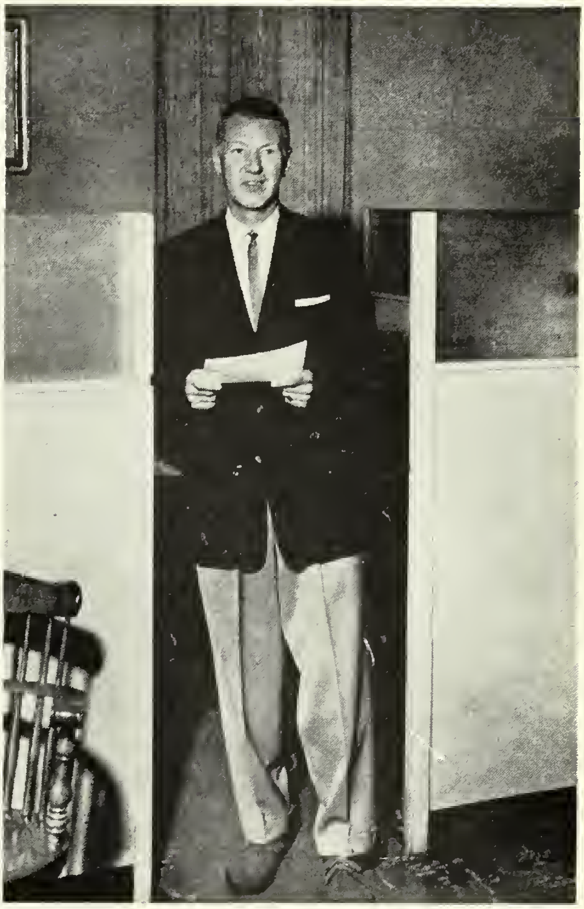
* * * *

DR. RAYMOND D. DAVIS of Waseca is suspending practice for an indefinite period. A replacement doctor was expected to be named by July 1.

* * * *

DR. HOWARD P. ROME, head of psychiatry at the Mayo Clinic, has been elected president of the American Psychiatric Association. A native of Philadelphia, he received his M.D. degree from Temple University School of Medicine in 1935 and interned at Pennsylvania Hospital in Philadelphia, later taking postgraduate work in internal

(Continued on page 22A)



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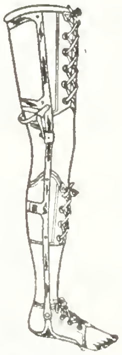
Mayo Foundation fellowships in anesthesiology at the Mayo Clinic are available quarterly, beginning July, October, January and April. Two and three year programs are fully approved by the Residency Review Committee of the A.M.A. and the American Board of Anesthesiology. Stipends increase annually to $4200 third year. Curriculum allows study towards a graduate degree from the University of Minnesota. Address inquiries to: Mayo Foundation, 200 First Street S.W., Rochester, Minnesota.



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NEWS BRIEFS

(Continued from page 21A)

medicine and psychiatry. Dr. Rome served in the Navy Medical Corps for four years and joined the Mayo Clinic in 1947.

* * * *

DR. RONALD W. BARR, mayor of Montevideo, has accepted the presidency of the Medical Service International, Washington, D. C., a program of the Sunnen Foundation. He will take a one-year leave of absence from the Montevideo Clinic. The new post will afford Dr. Barr an opportunity to work with United States medical personnel in foreign countries, a long-standing interest of his. Dr. Barr was born July 15, 1922, in Duluth, received his M.D. degree from the University of Minnesota, and interned at St. Luke's Hospital, Cleveland. An obstetrician and gynecologist, he practiced in Sioux Falls, S.D., before moving to Montevideo.

* * * *

DR. JOHN VENER, a 1963 University of Minnesota Medical School graduate, will join the Arlington Clinic this summer after completing internship at Ancker Hospital, St. Paul. The 25-year-old doctor is a division surgeon of the Minnesota National Guard. He was born in Sauk Center.

* * * *

DR. PHILIP G. HOEPER of Mankato has been elected president of Minnesota Blue Shield, succeeding Dr. Clarence W. Moberg of Detroit Lakes. Other new officers are Dr. Charles M. Bagley of Duluth, vice-president; Dr. Walter H. Halloran of Jackson, secretary; and Dr. Herman E. Drill of Hopkins, director. Dr. E. C. Bayley of Lake City was reelected treasurer. Dr. Olof I. Sohlberg of St. Paul and Dr. Bayley were reelected directors.

Deaths . . .

DR. DANIEL C. O'CONNOR of Eden Valley, Minn., died May 5 at the age of 81. The last surviving member of the Creighton University Medical School class of 1910, he had practiced in Eden Valley from 1911 to 1963. Dr. O'Connor was born in Verona, Ill., received his medical degree from Creighton, and interned at St. Mary's Hospital, Minneapolis.

* * * *

DR. ARTHUR N. SCHANCHE, 67, a native of Yankton, S.D., died April 24 in Ames, Iowa. He received his M.D. degree from Washington University of St. Louis, practiced in Sioux Falls, S.D., and Hills, Minn., and moved to Ames in 1930 where he was associated with the Iowa State College Hospital until 1942. Dr. Schanche then practiced in Ames until 1959 when he affiliated with the Veterans Hospital in Knoxville, Iowa, until retirement last fall.

* * * *

DR. JOSEPH B. WINNICK, 81, died May 14 at Charles T. Miller Hospital, St. Paul, after a lengthy illness. He practiced in St. Paul from 1907 until retirement two years ago. Dr. Winnick was born in Poland and received his medical degree from the Rush Medical School, Chicago.

* * * *

DR. PERCY A. WARD died in May at 74 years of age. Born in Zumbrota, Minn., he received his M.D. degree from the University of Minnesota in 1916 and for several years was an instructor in pathology and bacteriology at the university. Dr. Ward was a general practitioner, active in gynecology. He was a staff member of Abbott Hospital, Minneapolis, for forty-five years.

COMING *in* September

Articles and features to be found in the next issue of THE JOURNAL-LANCET

Since 1943 when Waldenström described a syndrome that he called benign hyperglobulinemic purpura in which purpuric skin lesions were associated with abnormalities of serum protein patterns, additions to the literature under labels of idiopathic hyperglobulinemic purpura and macroglobulinemia have confused the nomenclature. The diagnosis of primary, benign, or idiopathic hyperglobulinemic purpura is based on the characteristic clinical syndrome in the absence of any other disease entity.

In a paper entitled "Idiopathic Hyperglobulinemic Purpura" Dr. John L. Magness and Dr. Frank M. Melton of the Departments of Medicine and Dermatology, Dakota Clinic, Fargo, describe a case in which the salient features—chronic, relapsing, purpuric eruptions, persistent increase in gamma globulin, elevated total serum protein levels, and a sedimentation rate of 51 mm. per hour—are all illustrated.

Other papers scheduled to appear are:

- **Ear, Nose, and Throat for the General Practitioner, Part II. The Nose,** by Duane W. Nagle, M.D., Fargo Clinic.
- **The Association of Esophageal Hiatal Hernia with Ascites,** by James L. Fogle, B.A., James C. Cain, M.D., Lloyd G. Bartholomew, M.D., and John R. Hodgson, M.D., Mayo Clinic, Rochester.
- **Harry DeWitt Lees, M.D.,** by J. Arthur Myers, M.D., Professor Emeritus of Medicine, University of Minnesota.

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Ear, Nose, and Throat for the General Practitioner

Part I — The Ear

DUANE W. NAGLE, M.D.
Fargo

THIS ARTICLE is intended as an aid for the busy general practitioner who, like myself, found after entering general practice that ear, nose, and throat made up the largest percentage of his medical problems in practice. This subject was given very little time in the clinical years in medical school; however, in the average general practice I am certain that ear, nose, and throat ailments will not only rank at the top as far as what the doctor sees in his office but will also rank No. 1 among the most distressing conditions to diagnose and treat. Looking back on my own medical school training, I think, without question, the thing I knew the least about was ear, nose, and throat and, of course, eye.

The following article is by no means complete, but it is intended only as an explanation of dos and don'ts along with suggestions as to how many of these conditions can be treated. Should any of the readers be interested in enhancing their knowledge of modern otolaryngology, I would suggest the reading of "Fundamentals of Otolaryngology" by Dr. Lawrence R. Boies of the University of Minnesota. This is an excellent text which is easy to read and well illustrated.

I have divided this into 3 separate discussions: I the ear, II the nose, and III the throat, headaches, and the salivary glands. Part I is presented in this issue. Parts II and III will follow in subsequent issues.

EXTERNAL EAR

Flop ears or elephant ears. There are many types of deformities of the external ear which are congenital in nature, but by far the most common are the so-called flop ears or elephant ears. These are due to a malformation of the cartilage making up the anthelix, thereby allowing the external ear to protrude outward from the side of the head. There are several surgical techniques where the posterior surface of the external ear is utilized to expose the cartilaginous structure of the ear. By making incisions in the cartilage,

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DUANE W. NAGLE *is with the Department of Otolaryngology, Fargo Clinic and St. Luke's Hospital.*

it is possible to form a new anthelix, thereby bringing the ear into a more normal position parallel to the side of the head. The ideal time to do this is between the ages of 5 and 6, prior to the child's starting of school.

Eczema. The term eczema is a rather broad entity but best understood by the average lay person. This condition is well described but little understood as to the pathophysiology, as are most dermatoses. Acute eczema is characterized by redness, swelling, watery exudate, crusting, and considerable itching. When the acute stage has not been controlled and becomes chronic, it is characterized by a marked thickening of the skin, and even a stenosis of the external portion of the canal may develop. These individuals will usually have dermatoses elsewhere such as dandruff, a seborrheic dermatitis involving the face, nasolabial folds, and eyelids. If there is a dermatitis involving the face and scalp, it is necessary to treat this in addition to the ear canal. The ear canal lesions may be more severe than the others but, nevertheless, the other areas will have to be treated in order to clear the canals. Our treatment of the acute external ear canal consists of removing the debris from the canal with the use of an ear speculum and suction under direct vision. The canal is then sprayed with 1% neomycin and boric acid powder to prevent infection. The canal is then coated with 0.05% fluandrenolone (Cordran) ointment which not only helps the healing of the inflamed tissue but also greatly relieves the intense itching that these patients have. I realize there are a number of ways of treating these, among which is the use of Burow's solution along with a great variety of proprietary drops and medications. I have had excellent results by (1) controlling or preventing infection and (2) using topical steroid to promote healing and relieve the intense itching. I tell all patients that it is necessary to keep all water away from the ear and under no circumstances to dig in or about the ear. When there is involvement of the scalp and face, the scalp and face are washed with ordinary soap or shampoo preparations. The scalp is then cleansed with one of the anti-infective types of shampoo, of which there are at least a dozen different proprietary preparations. The particular one that I am most familiar with is Abbott's Selsun, which is a selenium sulfide detergent suspension. This should be used as a shampoo twice a week for at least two weeks. Once the seborrheic condition has improved, the shampoo may then be used once a week or every other week as needed. One precaution to be observed in this preparation is that it should not be allowed to enter the conjunctival sac since it is quite irritating and will cause considerable discomfort. Following the use of any of the antidandruff shampoos the scalp should be repeatedly rinsed to remove any remaining medication. When the seborrheic condition has been controlled in the scalp, that involving the face and ear canals will likewise improve. A topical steroid ointment may be applied to the external ear canals to help relieve itching and to hasten healing of the irritated skin.

Hematoma. The most common reason for a hematoma of the external ear is injury from either high school or college wrestling. Pressure is applied against the ear, usually by the heel of the opponent's hand, and then with either a clockwise or counterclockwise twisting movement the skin of the external ear is avulsed from the cartilage of the ear. This produces bleeding between the cartilage and the skin which results in hematomas of various sizes. The most important thing in the treatment of these hematomas is the removal of the blood without the introduction of infection into the area. Extreme caution should be used since this provides excellent culture media and infection may cause destruction of the cartilage. Consequently, marked deformity of the external ear will follow. Following the evacuation of the hematoma, a plaster cast is made so that the ear is between 2 layers of plaster, thereby compressing the area of the hematoma. This is left in place for several days to allow healing to take place. These individuals should be treated with antibiotics to prevent infection. Evacuation of the hematoma without plaster cast is inadequate since it will soon fill to its original size. One should also realize that where a hematoma has formed and healed, that area is more susceptible to recurrence of hematoma with minimal trauma thereafter. Repeated injuries result in so-called "cauliflower ears" which are very common in boxing and wrestling.

EXTERNAL EAR CANAL

Wax. Wax in the external ear canal serves a purpose. It coats the inside of the ear canal as a protective mechanism. If a small amount of water enters the ear canal, the protective wax prevents the water from macerating the canal and from introducing foreign pathogenic bacteria into the canal. Wax is produced in the first portion of the membranous canal; this is usually soft and brown. If the wax is dry, flaky, and hard it offers no protection to the ear canal. Wax may completely obliterate the lumen of the canal and will necessitate removal. Wax can be removed either by a curette under direct vision or by warm water. Generally, excessive wax is not a problem. When the wax is hard and is blocking the ear canal it is necessary to soften this plug; otherwise, forceful removal can denude the surface of the canal and thereby allow organisms to grow. I usually have the patients use either olive oil or mineral oil each evening for two or three days prior to removal. There are proprietary preparations for softening wax, but it has been my misfortune to have had 3 severe allergic reactions with one preparation, and I have therefore discontinued its use completely. When using water in the removal of wax, it is always necessary to ask the patient whether or not he has a known hole in the eardrum. Should there be a perforation, water should not be used in the removal of wax. The forceful stream of water will force debris and bacteria into the middle ear which will undoubtedly produce drainage. Following removal of wax after using water it is well to dry with suction or alcohol. The canal and tympanic membrane are then checked with the conventional otoscope. This will allow inspection of the eardrum for any possible trauma during the removal of the wax.

EXTERNAL OTITIS

Bacteria. The most common cause of a bacterial infection of the external ear canal is due to the absence of protective wax which in turn starts a vicious cycle. There is usually considerable itching of the ear canal, and invariably the individual will use a cotton swab, match, hair pin, or other object to dig in the canal. This results in a raw surface which is then flooded by coliform bacteria the first time the individual's hair is washed. This sets up ideal culture media, and the so-called external otitis is under way. If the infection is primarily involving the ear canals, I clean them under direct vision using suction and then spray with the 1% neomycin boric acid powder. The acidity of the boric acid discourages the growth of the coliform organisms, most of which are also susceptible to the neomycin antibiotic. Again I always discourage the use of the various antibiotic drops, since it is absolutely necessary to clean the debris out of the ear canal and to reduce the moisture content of the canal. This can best be done by using suction and then by filling the canal with the neomycin boric acid powder. If the infection has spread beyond the canal, there will be swelling of the external ear with tenderness anterior to the tragus and beneath the ear. I will then use systemic antibiotics in these cases. The 2 antibiotics that I most generally use are penicillin and triacetyloleandomycin. When the infection is acute I feel that daily cleaning of the ear canal is necessary to remove the accumulation of debris that occurs. I have on many occasions cleaned many of these canals two and three times a day; I do feel that this will greatly shorten the duration of the acute phase if the canal can be kept clean and filled with medication.

Fungus. Another type of infection which can occur, but not nearly as frequently as the bacterial infection, is the so-called fungus infection of the ear canal. When viewed, the canal appears to be filled with black, inklike areas or white cottony material. Under magnification the diagnosis can be made very easily as one can see the mycelia of the fungus very easily. Here treatment consists of placing 70 or 95% alcohol in the ear canal. Under direct vision with suction all of the debris is removed, which may be a considerable amount in a fungus infection. After the ear canal and tympanic membrane have been meticulously cleaned with suction it is necessary for the patient to use an alcoholic solution for several days to completely dry the canal and tympanic membrane. In order for a fungus to survive it must be warm and moist, otherwise growth is not possible. The ear canal provides an excellent area of growth for fungus since it is not only warm and moist but also is dark. Individuals wearing hearing aids with plastic molds have to be cautious about cleanliness, otherwise they may have no end of trouble with infection.

Foreign body. Foreign bodies are almost exclusively a problem of early childhood when stones, beads, beans, erasers, and so on are shoved into the ear canal by the child. When presented with such a problem, it is important to know what the foreign body is since this will undoubtedly help in its removal. With few exceptions most foreign bodies in the ear canal cannot be grasped with a bayonet forceps, mosquito forceps, or other types as it only pushes the foreign body further into the canal. The external ear canal should be examined preferably with a head mirror for light so that both hands are available for use. If the foreign body is well in and completely fills the membranous canal it can be removed in 2 ways. First, if the child is cooperative, a small wire hook may be fashioned so as to pass between the object and the canal wall, thereby applying pressure from the far side of the foreign body. If the object is a bead it is not too difficult to place the small hook in the hole of the bead. Removal then can be accomplished with minimal pressure and trauma to the child. Should the child not be cooperative it is inadvisable to attempt removal without sedation or even anesthesia. I have seen many ear canals severely lacerated and the children practically hysterical. I have seen another case when the doctor thought he saw a foreign body in the canal and actually avulsed the malleus from the ossicular chain. This was done to the child without benefit of anesthesia and worse yet demonstrated poor judgment on the part of the physician. Second, there are many small inorganic foreign bodies that can be removed using warm water and a syringe. However, there are foreign bodies and vegetable matter that will swell considerably when water is used; consequently, it is important to know what the foreign body is in the canal.

Trauma. Trauma to the external ear canal and tympanic membrane is not unusual and may result in a number of ways. One of the more common things that does occur is when the mother attempts removal of wax by using a cotton swab in the canal. Sudden movement of the child's head results in avulsion of the ear canal or even the tympanic membrane. Two things are important here, the first of which is to decide whether or not there has been damage to the tympanic membrane or if the trauma is confined to the external ear canal. Should the damage be limited to the ear canal, again neomycin boric acid powder can be used to prevent infection. Then instruct the mother to keep water in all form, shape, and manner out of the ear canal. This can best be accomplished by using a piece of cotton mixed with petroleum jelly (Vaseline) and then placing it in the external ear canal. If the eardrum is involved either by mechanical trauma from a foreign body or a sudden blast effect, the margins of the eardrum should be raised immediately. One should not use drops and other forms of medication since infection is not the primary problem. These torn flaps of the tympanic membrane should be raised if possible within hours after occurrence, since this greatly simplifies repair of the tympanic membrane. Our method of treatment is to inject the external ear canal with 2% lidocaine hydrochloride (Xylocaine) and adrenalin for anesthesia purposes and then under direct microscopic vision to turn the flaps out of the middle ear. Blood is drawn from the vein of the patient and allowed to clot. The clot is then placed on the inside of the middle ear. The torn flaps are placed on top of the blood clot and approximated. More blood clot is placed on top of the tear, and the canal is sealed. The patient is given antibiotics for at least five days. The canal is then partially cleaned at the end of the week with suction. This type of laceration heals readily as infection is not ordinarily present, unless there has been prior disease or infection of the middle ear. Consequently, drainage and normal physiologic function of the middle ear are excellent. The only time that I have had problems is if the perforation is several days old and the patient has been using various liquid aural drops. The flaps of the perforation have then retracted and scarred down. These individuals can be a problem since it is necessary to scrape the undersurface of the eardrum to remove the remaining portions of the old flap and then to use a vein graft in order to close the perforation. This type of perforation is very common due to a slap across the ear, a blast from a firecracker, a dive into water, a fall on the side of the head, and so on.

TYMPANIC MEMBRANE

Perforation of Shrapnell's membrane. This area is also referred to as the pars flaccida membrane. Perforations in this area are always serious, especially where infections are concerned. If there is an acute infection and the drainage is coming from a perforation in this area, the infection must never be taken lightly. This is the type of infection that can result in acute mastoiditis with bony destruction and involvement of the dura. Drainage must be established along with adequate antibiotic therapy. The drainage may on occasion be obtained by making a myringotomy incision in the pars tensa or, if it is an acute mastoid, it may be necessary to do postauricular simple mastoidectomy. Contrary to what many doctors think, acute mastoid infections are not a thing of the past. When the perforation is present in Shrapnell's membrane without drainage, this too requires attention since it almost invariably hides disease behind the membrane. One of the more common conditions will be a cholesteatoma which will be discussed a little later in this paper. Any perforation, whether it is in the Shrapnell area or in the pars tensa, is always a potential area for infection introduced through the ear canal. I feel that any individual having a perforation of the attic area, whether there is drainage or not, should be treated to eliminate the disease process and to close the perforation.

Perforation of the pars tensa. Perforations involving this portion of the eardrum may be either central or marginal. Any perforation involving the eardrum, as stated before, is a potential source of infection and disease introduced from the external ear canal. When the patient is seen with the idea of closing the perforation, 2 things must be considered: First, is it possible to eliminate any infection and disease involving the middle ear, attic, and mastoid areas. The second consideration is the eustachian tube. If the eustachian tube will not adequately drain the middle ear, any grafting procedure is doomed to failure before the start. Consequently, it is sometimes necessary to spend months preparing these middle ears for surgery before one can even consider graft. When the perforation of the pars tensa is marginal it is then necessary to raise a flap in the ear canal and to actually explore the middle ear to be certain that there is no squamous epithelium left in the middle ear that might allow a cholesteatoma to form or to eliminate the possibility that a cholesteatoma may already be present. The ossicles can also be examined at the same time to be certain that the ossicular chain is intact.

Many times when examining these ears it is not unusual to find the tympanic membrane adherent to the medial wall of the middle ear with the ossicles completely bound down by adhesions. This type of adhesive otitis is almost impossible to treat because the normal structure of the eardrum has been altered. Should one be able to free the tympanic membrane from the medial wall and ossicles, one cannot keep it from scarring down in the postoperative healing phase. Adhesions in the middle ear are no different from those found in the abdominal cavity.

Calcification. Calcified plaques are not uncommonly seen during examination of the eardrum. We feel that these usually occur as a result of chronic infection earlier in life and appear as chalky-white deposits on the eardrum. This is not serious; it usually does have some effect on the individual's hearing but not to a serious degree. It is not uncommon to see 2 or 3 separate calcified areas in the eardrum.

Healed perforations can usually be readily recognized by their appearance. The color is usually lighter than the rest of the eardrum and has a more transparent appearance. The membrane over the perforation is always thinner since the central fibrous structure of the eardrum is absent. The perforation is closed by the squamous epithelium of the outer layer of the eardrum and the mucosal layer lining the middle ear. When air is insufflated into the middle ear with a Politzer bag, these healed perforated areas can be seen to bulge very readily. I have seen some of these healed perforations reperforated by the individual's popping air into the middle ear under pressure. Fortunately, this is not too common, but it can occur.

Viral myringitis bullosa. This condition occurs quite frequently and can be seen in practically all age groups. The onset is very rapid. The individuals usually give a history of feeling perfectly well and within a period of time as short as five minutes have extreme pain in the ear. When the ear canal is examined, blebs (bullae) can be seen on the eardrum which will be filled with a straw-colored liquid or may be hemorrhagic. The bullae may be confined to the tympanic membrane or may actually involve the ear canal as well as the eardrum. The pain may be so severe as to require morphine and even hospitalization. Treatment for this can be quite varied. It is most important to keep water out of the ear canal to prevent secondary infection from starting in the blebs. Often the patient will come in with a bloody, watery discharge from the ear canal which is the result of these blebs spontaneously rupturing. My usual treatment is to open the blebs with a myringotomy knife and then to spray 1% neomycin boric acid powder into the canal to prevent secondary infection from starting. I also feel it is worthwhile to use antibiotics for four or five days. I have seen several cases in which secondary infection was a problem: These individuals ended up with a perforated eardrum and a middle ear infection. The question may arise as to whether or not this may have been a middle ear infection to begin with, followed by perforation of the eardrum, but a history of these individuals will tell you that they had a bloody, watery discharge which became purulent two or three days later. These individuals should also be told that it may take as long as two weeks for the ear to clear and for the hearing to return to normal. The vast majority will clear without any residual effects, but it is not unusual to find an occasion when the tympanic membrane has been involved and the supporting structure of the eardrum has been lost. For some reason it seems that this usually occurs in the posterior-superior quadrant which overlies the incus and stapes. This presents a problem because the membrane usually becomes adherent to these ossicles and may actually develop an invagination of epithelium into the middle ear or attic area. This then becomes a potential source of a cholesteatoma for this individual.

MIDDLE EAR

The middle ear is made up of the tympanic membrane on the lateral side and contains the ossicular chain. The malleus is in contact with the tympanic membrane and is linked by the incus to the stapes, which is seated in the oval window. Vibrations of sound are then transmitted from the tympanic membrane through the ossicular chain to the stapes which in turn transmits the sound to the inner ear. The air pressure in the middle ear has to be the same as in the atmosphere. Equalization is accomplished by the eustachian tube. Every time a person swallows, the eustachian tube is opened by the musculature which is attached to the soft palate. The crackling noise heard when swallowing is not abnormal and is related to the opening and closing of the eustachian tube equalizing the pressure in the middle ear. This function becomes extremely important in the presence of an upper respiratory infection when the orifice of the eustachian tube becomes blocked. This sets up an important sequence of events which are very common. During acute upper respiratory infections it is not uncommon to have the individuals blow infectious material into the opening of the eustachian tube. The infection begins in the tube and ends with an acute abscess forming in the middle ear. This is referred to as the common earache which, if untreated, will result in a draining ear, mastoiditis, or both. I feel that in acute otitis media when the eardrum is bulging that it is important to establish drainage at once and to place the individual on high doses of antibiotics. A good number of doctors will allow the tympanic membrane to spontaneously rupture. I feel that this is a mistake. When the eardrum spontaneously ruptures, it is necessary to have an area of necrosis before it will perforate. This can allow a permanent perforation to take place, or it may heal without the benefit of the central fibrous supporting structure. When a myringotomy is performed the abscess can be drained without this destruction. Usually the greatest problem is that the eardrum will heal before the middle ear has adequately drained; therefore, it is not unusual to have to open it the second time. We use a No. 90 or No. 160 polyethylene tube in the incision to maintain drainage. When the infection is under control it is a simple matter to remove this polyethylene tube. I have yet to have one that did not heal. There are 2 other very common conditions that occur which involve the middle ear: These are the serous and mucoid otitis medias. These can follow otitis media if the infection subsided with antibiotic therapy but the products of inflammation did not completely absorb. These will usually be the so-called mucoid types.

The only satisfactory way of removal is to do a myringotomy and to remove the thick tenacious mucoid material with suction. The serous and mucoid otitis media can also occur without an acute infection as follows: During an acute upper respiratory infection the eustachian tube may become obstructed and thereby not allow the pressure to be equalized in the middle ear. The oxygen content of the middle ear is rapidly absorbed into the mucous membrane, leaving a negative pressure relative to the atmosphere. Should this negative pressure not be relieved a serous fluid can actually be secreted by the mucosa of the middle ear. When this is seen the eardrum has a peculiar amber color and may actually appear to bulge. Where mucoid material is secreted the eardrum has a dull, blue-gray color and the malleolus a chalky-white appearance, and if this condition has persisted for some time the eardrum may not appear to be retracted but may actually be in a normal position. When these individuals are seen, the turbinates of the nose should be decongested using 0.25% phenylephrine hydrochloride (Neo-Synephrine) spray and the nasopharynx examined to be certain that there is no purulent material.

A Politzer bag may be used to insufflate the middle ear. The patient is told to say "k, k, k" or "kitty, kitty, kitty," at which time the bag is compressed rapidly in an attempt to inflate the middle ear. Should this be unsuccessful, the patient can be given a drink of water and told to hold it in his mouth until the bag can be readied. When the patient swallows the water, the bag is rapidly compressed and the air is forced through the eustachian tube into the middle ear. When the tympanic membrane is examined, the individuals with the thin serous fluid will have bubbles behind it. The individual with the thick mucoid fluid will have a bulging eardrum, but no bubbles will be seen. The color of the tympanic membrane usually remains about the same as before. In both instances the hearing will markedly improve clinically and audiometrically following the insufflation. Once the negative pressure has been relieved, the patient can be shown how to do self-insufflation. Children can be given balloons and told to inflate them while holding the nose shut. All of our tonsillectomy patients are examined ahead of time, since a high percentage of these children have fluid in the ears and may have a marked hearing loss which can be corrected at the same time as the tonsillectomy-adenoidectomy is performed. When the child has a mucoid otitis media, polyethylene tubes are put in place and are left for two weeks to two months. The primary purpose of this is to allow the middle ear and eustachian tube to recover. I learned the hard way that the mucoid material will recur very readily if adequate aeration of the middle ear is not maintained. The easiest way is to place the No. 160 polyethylene tube in the myringotomy incision and allow it to remain until the eustachian tube and mucosa of the middle ear have recovered. One must not forget to caution the mother that every time the child is bathed and the hair is washed that the external ear canal must be blocked. I usually tell them to use cotton mixed with petroleum jelly and place the pledget in the canal with a tweezers. After bathing, the plug may be removed from the canal.

Cholesteatoma. Cholesteatoma is a squamous epithelial deposit of uncertain origin but is generally felt to be the invagination of the surface epithelium into the middle ear or attic area. Generally speaking, the cholesteatoma means nothing but trouble as it harbors infection and causes chronic drainage and destruction of the ossicles in the middle ear space. The cholesteatoma usually will involve not only the middle ear but the attic and mastoid area as well. Whenever cholesteatoma is present it is important that water be kept out of the canal since the squamous epithelium absorbs moisture and will swell. Most water carried into the ear is loaded with coliform organisms. The result is usually a foul-smelling, purulent drainage from the ear. It is not unusual to find the external canal macerated along with the tympanic membrane. There is often a great deal of granlution tissue and polyp formation. It is useless to use various ear drops and antibiotics. It is absolutely essential to clean these canals, preferably under microscopic vision, and to explain to the patient the necessity of surgery. There are various forms of cholesteatoma, as occasionally will be seen in an individual who has had his cholesteatoma for many years and has not had trouble. This form is usually a dry, uninfected type which nevertheless causes considerable destruction and loss of hearing. Whether the ear is draining or not, these individuals should have surgical treatment. Preservation of the hearing is always important, but it is absolutely essential that the cholesteatoma and infection be eradicated before any reconstructive procedure can even be considered.

Hearing loss. Basically there are 2 types of hearing loss. One is the so-called conductive loss in which the ossicular chain has been disrupted by disease or trauma or the stapes has been fixated in the oval window by a bony overgrowth, referred to as otosclerosis. Individuals with conductive hearing loss hear better by bone conduction than by air conduction. Since the advent of the Zeiss-Lempert microscope these are the cases that can be corrected surgically. The second type of hearing loss is the so-called nerve deafness which involves the hair cells within the organ of Corti. These are the cases in which air conduction and bone conduction are the same or air conduction is only slightly better than bone conduction.

Inner ear. The inner ear consists of the vestibular system which is made up of the 3 semicircular canals which have to do with the sense of balance and position in space. The second portion consists of the cochlea which is the organ of hearing. These 2 systems are intimately related by a vestibule common to both. The oval window opens into the vestibule of the labyrinth. The vestibular portion of the inner ear is involved by a well-known but little understood process which is referred to as Ménière's syndrome, better known as endolymphatic hydrops. This condition is usually characterized by nausea, vomiting, and severe vertigo. There is also an associated loss of hearing and increased noise or tinnitus in the ear. When these individuals are questioned, it is not uncommon to find that the first thing the patient actually noted was a decreased ability to hear in the one ear. This usually involves the low tones and the ability of the individual to understand in a group. I have seen patients with a drop in hearing involving the low tones who will go on to develop severe nausea, vomiting, and vertigo at a later date. The etiology is far from clear, and the treatment is certainly far from satisfactory. Generally, the treatment consists of the removal of sodium from the individual's diet, a diuretic to dehydrate the individual, a vasodilator to increase the vascular supply to the inner ear, and medication to relieve the nausea and vertigo. There is no way to predict how these individuals will respond, but they should be treated early and adequately. These individuals should not be permitted to drive or to be around moving machinery until the acute phase has completely subsided. There are also the so-called cases "of labyrinthitis" which cause the individual to develop nausea, vomiting, and vertigo without apparent hearing loss. How and why this takes place certainly is not clear, but again the patient is treated the same way medically. These cases of Ménière's syndrome may reach a point where the individual is constantly dizzy, and a decision may have to be made as to the destruction of the labyrinth on the involved side. This will also mean that the hearing will be totally and permanently lost for the individual. This procedure is usually not carried out unless all other forms of treatment have failed to give any degree of satisfaction.

Tinnitus. Tinnitus can be best described as a sensation of sound perception which is perceived only by the patient, since it originates within himself. This may occur in one ear or may be in both. Often it is impossible for the patient to tell from which ear the sound is arising. There are certain conditions in which the patient describes a clicking sensation, and when the stethoscope is placed against the ear a clicking sound can actually be heard by the examiner. The exact etiology of this is not clear but could certainly be the clonic contracture of the tensor tympani muscle, stapedial muscle, or the opening and closing of the orifice of the eustachian tube. Vibratory sounds can arise on a circulatory basis since the internal carotid artery passes through the temporal bone in close proximity to the cochlea. These vibratory sounds are readily transmitted to the cochlea. The most common form of tinnitus, which is described as a ringing or whistling or like the hiss of escaping steam, believed to arise from the hair cells within the organ of Corti. During the apparent degeneration of these cells, impulses are given off which the brain interprets in various ways. The etiology of the hair cell degeneration is far from clear but certainly can be due to hereditary factors or to acoustical trauma or be a result of viral and bacterial infection. Various medications such as the salicylates and antibiotics are certainly histotoxic. The more common antibiotics producing cochlear damage are streptomycin, dihydrostreptomycin, and neomycin. The intensity of tinnitus will vary from day to day but is usually aggravated by fatigue and anxiety. There is no specific treatment of tinnitus, but an explanation to the patient and reassurance are necessary.

Vertigo. Vertigo is an extremely complex subject which is only partially understood. It may be best described as a sensation of spinning and turning when the patient's eyes are closed; when open, the objects in the room seem to be revolving around him. The word dizziness is extremely common in the lay world, but not all dizziness is vertigo. When a patient presents himself with dizziness it is necessary to decide whether this is a true vertigo or more of a giddiness or light-headedness. True vertigo usually has the sensation of nausea accompanying the turning sensation, and it is very common to have vomiting. Usually in the so-called giddiness or light-headedness there is no nausea or vomiting but more of an unsteady feeling. This type of dizziness is usually seen in older individuals and occurs where arising from a supine position quite rapidly. This also occurs when the individual bends over and suddenly brings himself to an erect position. Quite closely related to this type of dizziness is the so-called postural or positional vertigo when the individual becomes vertiginous when the head is placed in certain positions either in the erect or supine position. Quite commonly the patient will look up and will be unable to maintain a steady position. Another common complaint is dizziness when turning from one side to another while lying down. This type of vertigo apparently arises from within the labyrinth, but the mechanism is not understood.

When examining an individual for vertigo it is always necessary to check the individual in various positions to be certain there is no spontaneous nystagmus either in the horizontal or vertical direction. There are probably as many ways of making a caloric test as there are people doing the test. There is no standardized method. About the only conclusion that can actually be drawn from the test is whether the caloric response is normal or abnormal. A rotary or vertical nystagmus is always pathological and should be investigated by a neurologist. The absence of the caloric response is always pathological.

When doing a caloric test the ear canal should always be examined, first to be certain that wax is not present and second that the eardrum is intact. If there is a perforation of the eardrum, water should never be placed in the ear canal since it may introduce infection into the middle ear. The method I have used for doing the test is to place the patient in a prone position and to introduce 1 cc. of ice water for forty seconds in the ear canal. The nystagmus response is then measured by a stopwatch, and ocular movement observed as to whether it is purely lateral in the horizontal plane or has a rotary component. The opposite side is then checked in the same manner. It is important that both sides be almost identical in response. Should there be an absence of response on one side, several cubic centimeters of ice water are then irrigated through the canal on this side to see if maximal stimulation will produce nystagmus. Should there continue to be an absence of response, this must be checked further since acoustic neuroma must be considered. There are a number of other things that will produce a dead labyrinth such as viral infections, drugs, trauma resulting in fractures through the temporal bone, and vascular occlusions involving the inner ear. The most serious, of course, would be the space-occupying lesion of an acoustic neuroma. The hearing with acoustic neuroma is usually affected on the same side. X-rays may or may not show widening of the internal auditory meatus, corneal sensitivity may be decreased on the involved side, and spinal fluid protein may be elevated.

Hearing test. When evaluating a person's hearing it is essential that the ear canals again be examined to be certain that they are not occluded with wax or debris. After any cerumen has been removed the eardrums should always be examined for perforations, retractions, and presence of fluid behind the eardrum. The latter is quite common in childhood, and without even testing the child you will immediately know that there will be at least a 20-decibel loss when the eardrum is retracted and fluid is present. When this is the case I always test the child before inflating the ears so that I may compare the gain on insufflation. When one insufflates the ear, it is well to decongest the turbinates and to examine the nasopharynx and the nasal fossa for the presence of infection before actual inflation is done. Should no infection be present the Politzer bag can then be used to inflate the middle ears. The hearing is then immediately rechecked using the previous audiogram so that the 2 levels can be compared. This will give a graphic demonstration to the parent and will aid in your explanation of what has happened. The hearing tests should consist of an air conduction test and also a bone conduction test. If the air conduction is decreased considerably more than the bone conduction, this is labeled a conductive loss. If the air conduction and the bone conduction are equal, this is termed perceptive or nerve loss. The so-called conductive loss usually can be corrected, whereas the nerve or perceptive loss usually cannot be altered. Should an audiometer not be available to the doctor, tuning forks are relatively inexpensive and much information can be gained from their use. The 250 and 500 forks are probably the most valuable to have in the office. Probably the most common complaint of the perceptive or nerve deafness patient will be the inability to understand the spoken word. These individuals understand quite well when one individual talks slowly and enunciates clearly. Their greatest difficulty is in a group when several people talk at once or when there is noise in the background. They will state that they can hear but they cannot understand because everything seems to run together. These individuals will also complain that noise may sound excessively loud and almost painful at times. The reason for this is that the ear seems to recruit loudness, and consequently, it will appear to be abnormally loud. These individuals are the ones that will have trouble wearing a hearing aid, since they are unable to find a satisfactory level of hearing. The sound is either too loud or not loud enough, and any slight variation will be to one extreme or the other. These individuals are the ones that are turning the hearing aid up or down, plugging it in, and taking it out. The aid will finally end up in the dresser drawer because they cannot tolerate it. These individuals are also the ones that usually have fairly good low tone perception but hearing rapidly drops off at the higher frequencies.

The many hearing aids that we have available today are excellent, but at the same time there is not a hearing aid made that will help a person to understand the spoken word. We see patients every week who have 2 or 3 hearing aids because some sales representative or hearing aid company tells them that this aid will help them to understand. We also have patients with aids who have been told by the hearing aid representative that if they do not wear a hearing aid the nerve will degenerate much faster because of disuse. This is completely untrue because the nerve will not degenerate any faster without the hearing aid than with it.

Should tuning forks not be available for testing, a watch can be used in a quiet room by first placing it over the ear and having the child or the adult listen. Should the patient not be able to hear the watch by air conduction, the watch can be placed against the bone behind the ear. If the individual can hear it by bone and not by air, he has a conductive deafness.

When the air and bone conduction curves are the same in a hearing loss, this is called a "perceptive" or nerve loss. Surgery, at the present time, is not indicated in these cases. Speech testing should be done as it will indicate fairly well how the patient will understand. The test is done with and without masking.

Coronary Atherosclerosis in Delhi

An Autopsy Study

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THE INCIDENCE of coronary artery disease in Delhi was assessed earlier from epidemiological studies and hospital statistics.[1,2] The present study of autopsy material has the same objective and is of interest because such large-scale studies from a country as vast as India are few and far between.

MATERIAL

Four hundred fifty autopsies (340 men, 110 women) were studied in detail by a method of grading of atherosclerotic lesions. The sources of material included: (1) medicolegal cases from the police mortuary and (2) autopsies done at the Lady Hardinge Hospital for the period 1959-1961. Unselected and consecutive autopsies were taken from both sources. Patients dying of ischemic heart disease were excluded from the second group.

METHODS

All the hearts were fixed in 10% Formalin and, after removal of blood clot, were weighed with intrapericardial aorta and pulmonary artery. After a detailed inspection of the myocardium, valves, coronary ostia, coronary arteries, and available aorta for any macroscopic abnormality, dissection was carried out. The methods used were in conformity with the recommendations of the World Health Organization Expert Committee,[3] namely, determination of the degree of luminal occlusion followed by splitting of the artery lengthwise to study the extent of the surface area involved. Two methods were employed:

Determination of the degree of luminal occlusion. Cross sections of the main arteries and their branches were made at 5-mm. intervals and at 3-mm. intervals wherever sclerosis was severe. The coronary arterial tree was divided into 16 segments and grading was 1 to 4, that is, less than 25% involvement to complete occlusion of the lumen. Paraffin sections and staining with hematoxylin and eosin were also made of some advanced lesions. The maximum sclerosis was recorded for each of the 16 segments and the following determined using the method of White and associates:[4] (1) average grade of sclerosis in each of the 16 segments, (2) average grade of sclerosis in the 6 main divisions, and (3) average grade of sclerosis per heart per decade.

Surface area involvement. The arteries were then split lengthwise to note the degree and extent of atherosclerosis in the 16 segments, using Sudan IV staining and a magnifying lens where necessary. The "atherosclerotic index" for the same 3 categories was determined by the method of Roberts and associates.[5] In this, the amount of surface area involved was first determined, the worst lesion at the site then studied, and a letter (A, B, C) and the numerical value of a sign (+, ++, etc.) assigned to each arterial segment.

RESULTS

Attention is drawn to the small number of patients in age groups over 60 and to the smaller number of female autopsies as compared to male (table 1). Accidents accounted for the largest number of deaths (table 2).

The results obtained by the 2 methods were comparable in that severe grades of sclerosis could be assessed by either. However, with the method of surface area involvement the percentage of patients with atherosclerosis was higher and earlier lesions were picked up. Thus, the earliest lesions were seen in the second decade by this method and in the third by the other. The differences, however, tended to narrow with higher grades of sclerosis.

The overall incidence of atherosclerosis (Fig. 1) for all age groups was 53.7% (men 59, women 38%). After age 40, these figures were 88.2, 88.4, and 87.1%, respectively. Beginning in the second decade, atherosclerosis progressed steadily with age to a 100% incidence at age 80. However, the incidence of severe sclerosis, that is, grades 3 and

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TABLE 1

AGE AND SEX DISTRIBUTION OF 450 AUTOPSIES

Age in decades	*Males* Number	%	*Females* Number	%	*Total*
Below 9 years	28	6.2	14	3.1	42
10–19	28	6.2	17	3.8	45
20–29	85	18.9	29	6.4	114
30–39	60	13.3	19	4.2	79
40–49	47	10.4	6	1.3	53
50–59	50	11.1	8	1.8	58
60–69	25	5.6	11	2.4	36
70–79	12	2.7	4	0.9	16
80 and above	5	1.1	2	0.4	7
Total	340	75.6	110	24.4	450

TABLE 2

PRIMARY CAUSES OF DEATH

Cause of death	*Males*	*Females*
Burns	10	15
Suicide	30	20
Drowning	10	5
Electric shock	20	10
Accidents	197	20
Heat stroke	5	2
Snake bite	5	5
Sudden deaths (ischemic heart disease)	8	–
Malignant growths	35	–
Pulmonary tuberculosis	10	7
Cirrhosis, liver	4	3
Rheumatic heart disease	3	10
Intracranial thrombophlebitis	–	4
Renal disease	–	7
Typhoid	–	2
Pneumonia	3	–
Total	340	110

4 lesions, thrombosis, and ulceration, was considerably lower in both sexes and began in one man in the third and in the great majority in the fourth and fifth decades; in women severe sclerosis began in the sixth decade. The 50% incidence in women 80 and over is misleading as there were only 2 autopsies in the ninth decade.

Fifteen patients showed grade 4 lesions in 1 or another branch of the coronary arterial tree, with 1 patient below age 40. Thrombosis was found in 6 patients, 4 instances in the anterior descending and 2 in the right main artery. Subintimal hemorrhage was found in 4 patients with severe sclerosis. Calcification was extremely common, even with grade 2 sclerosis.

There was 1 case of myocardial infarction in the entire series, in a 70-year-old man with a maximal sclerosis of grade 2.5. There were 8 cases of sudden death among the police autopsies, attributable to ischemic heart disease. The coronary arteries were significantly diseased in 6 with sclerosis of grades 3 to 4 at some point in the major coronary arteries. The remaining 2 showed grades 1.5 to 2.5 sclerosis only. None of these showed infarction.

PROGRESS OF LESIONS IN INDIVIDUAL ARTERIES

Men. The severity of lesions was in the following order: anterior descending, right main, circumflex, and left main arteries (Figs. 2-5). The marginal and posterior descending branches were affected the least. In all, the proximal segment was most affected, followed by the middle and the distal. The left coronary artery was not divided into segments because of its short length. The earliest lesions appeared in the third decade in all arteries, except the marginal and posterior descending where they appeared in the fifth and sixth decades, respectively. The degree of sclerosis rose steadily with age reaching a peak in the sixth decade, followed by a fall and a second peak in the eighth. By splitting the vessels, the earliest lesions were found to be in the second decade and not the third. Otherwise the findings were similar.

Women. The arteries affected in order of severity were the same as in men, and the earliest lesions were seen in the fourth decade instead of the third (Figs. 2, 5-7). The degree of sclero-

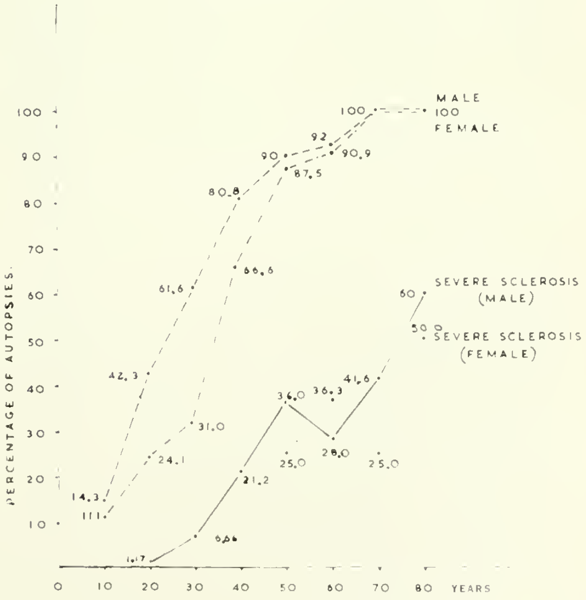

Fig. 1. Incidence of all types of atherosclerotic lesions and severe sclerosis in both sexes

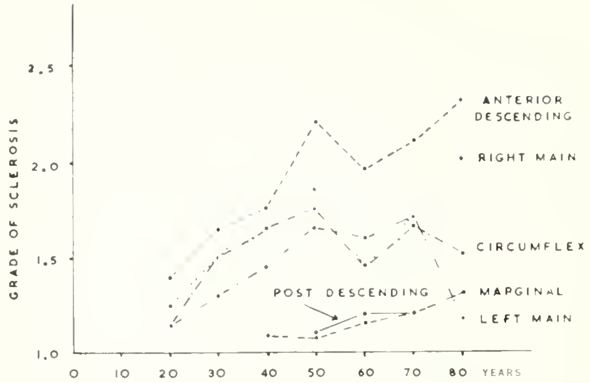

Fig. 2. Average maximal sclerosis in each complete coronary artery branch per decade in men

sis, however, was a little lower at all ages except in the seventh decade when it was actually somewhat higher than in men. The peak was in the seventh decade for most of the arteries, a decade later than in men. This was followed by a fall in the eighth and ninth decades when, however, there were very few cases. By the method of surface area estimation, the earliest lesions were in the second decade, as in men. Otherwise the results by 2 methods were identical.

Other findings. In both sexes, the left coronary was more affected (94% men, 89% women). The dominant circulation, as far as could be determined without the injection technique,[6] had more severe sclerosis. The intramural arteries were less affected than the extramural, as found by others.[7]

Heart weights (table 3) were much lower in this series than the 350 gm. accepted as minimum for diagnosing hypertrophy.[4,8] This was perhaps related to the low body weights in this population. Significant narrowing of the coronary ostia was seen in only 10 patients. Anatomic peculiarities found in 20 included the posterior descending arising from the left circumflex, absent circumflex, and thread-like right coronary arteries.

DISCUSSION

The present data assume significance when compared with those of other countries. In the United States, similar studies using the method of luminal involvement were done in men by White and associates[4] and in women by Ackerman and associates.[9] Indian men resembled American men in the order of severity of involvement of the main coronary arteries and their segments and in the time of the peak, which was the sixth decade in both (Fig. 3). However, the degree of sclerosis was much less at all ages than in their American counterparts.

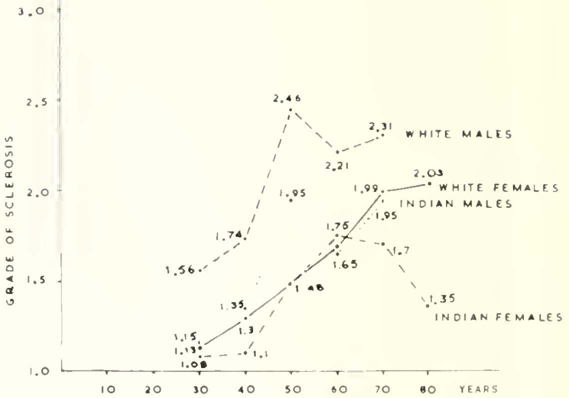

Fig. 3. Comparison of average grade of sclerosis in Americans and Indians

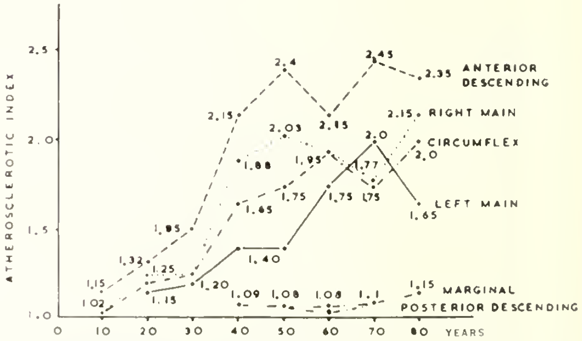

Fig. 4. Average atherosclerotic index in the 6 main divisions by decades in men

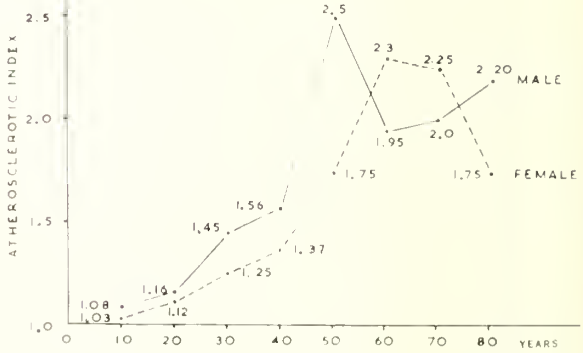

Fig. 5. Average atherosclerotic index in both sexes by decades

Thus, in American men, 18% of the hearts in the fourth decade and 70% after age 50 had grade 3 sclerosis. Among Indians the figures were 6 and 32%, respectively.

Indian women had a lower grade of sclerosis than American women, beginning in the fourth decade, but reached a peak somewhat higher

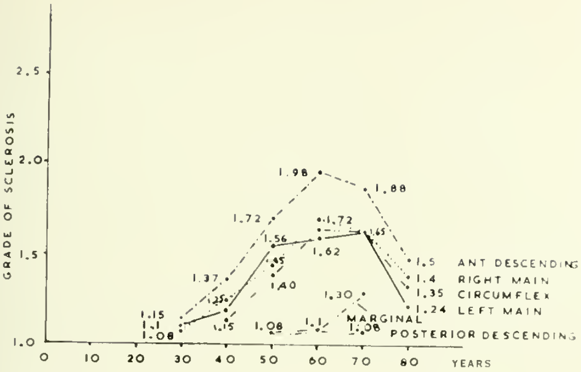

Fig. 6. Average maximal sclerosis in each complete coronary artery branch per decade in women

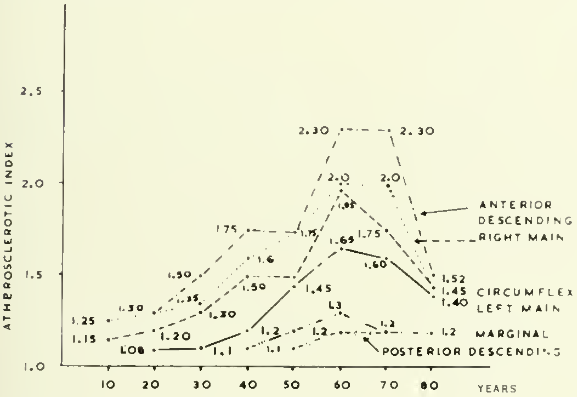

Fig. 7. Average atherosclerotic index in the 6 main divisions by decades in women

than American women in the seventh. At age 50, the sclerosis was identical. After age 70 there was a falling off among the Indian women, which in part might be due to their small number. American women continued to show a steady rise into the ninth decade, but their number in the older age groups was much larger (Fig. 3).

By the method of surface area estimation, Americans[5] had higher atherosclerotic indexes than their Indian counterparts.

In a comparative study of atherosclerosis in the United States and Bangkok, Hirst and associates[10] found severe sclerosis in 18.5% of patients in Los Angeles and 2.7% in Bangkok, while myocardial infarction was present in 21.2 and 2.7%, respectively. Coronary occlusion or myocardial infarction, or both, showed an incidence of 24% in Los Angeles and 2.7% in Bangkok.

In Mexico, Tamayo and associates[11] found 38 cases of myocardial infarction out of 2,000 autopsies (1.2%). The incidence was 2.8% when cases of clinical coronary artery disease were included. Twenty-five percent of patients of all ages showed atherosclerosis and 21% severe grades of sclerosis. There was no sex predominance. The present study resembles those from Mexico and Bangkok in the low incidence of myocardial infarction and severe sclerosis.

Recent data from other parts of India are of interest. Gore and associates,[12] in a comparative study, found a low incidence of myocardial infarction and of severe sclerosis in Vellore (Southern India), Japan, and Jamaica as compared with the United States. The ratio of myocardial infarction to total autopsies in those above age 40 was 5:105 (4.8%) in Vellore, 7:268 (2.6%) in Jamaica, 10:147 (6.8%) in Japan, and 276:1,076 (25.7%) in the United States. Severe sclerosis (grades 3 and 4 lesions) appeared in the United States in the fourth decade and in Indians and Japanese in the fifth.

Mathur and associates,[13] in an autopsy study of several arteries, found the first evidence of coronary atherosclerosis in the second decade. All the arteries were involved by the fifth decade, and there was a steep rise in surface area involved and complicated lesions from the sixth up to the eighth decades with no terminal decline.

TABLE 3

RANGE OF HEART WEIGHTS AND AVERAGE BODY WEIGHTS BY DECADES

	Males			*Females*		
Age in years	*Total*	*Weight range*	*Average weight (gm.)*	*Total*	*Weight range*	*Average weight (gm.)*
Less than 9 years	28	15–100	56.4	14	25– 80	53.3
10–19 years	28	80–225	149	17	80–200	140
20–29 "	85	120–262	192	29	120–250	182
30–39 "	60	175–275	210.5	19	180–250	204.5
40–49 "	47	175–275	250.6	6	175–250	210
50–59 "	50	200–325	260	8	175–270	230
60–69 "	25	200–290	252	11	156–285	235
70–79 "	12	230–290	259.5	4	224–275	248
80 and over	5	250–255	252.5	2	235–275	255

Wig and associates,[14] in a study of 151 patients, found that the lesions progressed with age from the second decade to a peak in the sixth, with a fall in the seventh. Grades 3 and 4 lesions in men were found in 38% of patients after age 40 (18 out of 47), and 64% of patients showed atheroma after age 20.

Our figures for severe sclerosis and overall incidence of atherosclerosis appear somewhat lower than those of Vellore, Amritsar, and Agra, although the methods used were not strictly comparable. Perhaps there are regional differences.

It seems reasonable to conclude from this study that although generalized atherosclerosis of the coronary arteries is present from the second decade and progresses steadily with age, the incidence of severe sclerosis is low. The incidence of myocardial infarction and of severe sclerosis without infarction is also low. These findings support previous work from this department showing a low incidence of ischemic heart disease from hospital statistics and epidemiological surveys.[1,2] A generally poor diet, low fat intake (less than 20% of total calories), low body weight, low blood pressure levels, and low total serum cholesterol levels were found in these patients. It is possible that all these facts taken together are responsible for the low incidence of coronary artery disease in the general population, the majority of whom are extremely poor. The differences from Western figures appear to be in degree rather than in kind.

SUMMARY

1. An autopsy study of 340 male and 110 female hearts has been reported. A method of determination of luminal occlusion was adopted, followed by estimation of the surface area involved.

2. At all ages, the overall incidence of atherosclerosis in both sexes was 53.7% and after age 40, 88.2%. The atherosclerotic lesions first appeared in the second decade and rose with age to a peak in the sixth decade in men and in the seventh in women. Severe sclerosis appeared in the fourth decade in men and in the sixth in women, with an overall incidence of 30.5% after age 40. There was only 1 case of myocardial infarction in the entire series; 8 subjects with coronary occlusion without infarction died suddenly.

3. Compared with American figures, Indian men had lower grades of atherosclerosis throughout. Indian women, although showing lower grades initially, had identical or greater sclerosis after the fifth decade.

4. The figures have been compared with those from other parts of India and elsewhere in the world.

This paper was read at the Seventh International Congress on Diseases of the Chest at New Delhi, India, February 1963.

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Good Methods and a Proper Point of View

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> "Give him good methods and a proper point of view, and all other things will be added as his experience grows."
>
> WILLIAM OSLER

GRANTING THE WISDOM of Osler's position, perspective must be afforded to project the future. Santayana said, "Those who do not remember the past are condemned to repeat it." Within the memory of man, the very face of medicine has been so altered as to merit a review of some of its notable changes as a basis for probable developments in this sphere of human interest and activity.

Perhaps the decline of infectious diseases, both in incidence and gravity, has been one of the most remarkable changes in the past half-century. Preventive measures of sanitation and vaccination have rendered typhoid fever and smallpox relatively rare diseases. Asiatic cholera and bubonic plague now have a circumscribed endemicity, although the speed and range of modern transportation by air hold an ever-present threat of a sporadic spread of these exotic diseases. Singularly, the exanthems have lost their terror. Immunization may be credited with much of the ground gained in limiting the occurrence of diphtheria. The education of the laity and the profession, early recognition, hygienic measures, chemotherapy, and surgery all have contributed to the gratifying success in the control of tuberculosis. In this area, a note of caution must be sounded. With the advent of antimicrobial and treponemicidal agents, the death knell of gonorrhea and syphilis was presumed to have been sounded. Instead, recent surveys have indicated a serious recrudescence in this important field, so the battle must be renewed with intensified vigor to regain lost ground. Basically the same principles apply to the control of tuberculosis. The fight is not won. We must press our advantage relentlessly.

Another aspect of this matter excites further attention. The antimicrobial agents have created a profound disruption of the biologic balance of Nature. Smith thus expressed the situation prior to their introduction: "The normal microbiologic flora of man is varied and complex but seems to have been stabilized by a long process of evolution in such a manner that the organisms have a happy home and man is not injured. The microorganisms, bacteria and fungi are properly designated commensals and not saphrophytes. They are antagonistic to and prevent pure saphrophytes from joining the normal ecologic flora." So it has come to pass that strains of pathogenic bacteria have emerged that are resistant to the action of antagonists to which they were once sensitive. With the imbalance induced by the antimicrobial agents certain bacteria, fungi, and viruses have assumed unaccustomed pathogenic prominence in human disease.

Added to this expanding field, a clearer understanding of the part played by lesser or greater changes in the chemistry of life has greatly widened the horizon of medicine. Claude Bernard wrote, "The physician is one who studies the sick man and uses physiology to enlighten and advance the science of disease." Pausing for a moment to reflect on the course of medical progress, one is impressed by the transitions of the domination among the several disciplines in medical thought and practice over the years. Through Bichat, Corvisart, Laennec, and Louis, among others, the bedside-necropsy correlation of disease manifestations marked the dawn of modern clinical medicine. Thereafter the cellular pathology of Virchow revolutionized medical

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thought by transferring the emphasis from gross morbid anatomy to minute histological changes. In turn, the ascendency of microbiology under Pasteur, Lister, and Koch for the time placed the etiology of disease above all other considerations in practice. The professional attitude was not unnatural or unreasonable. By appropriate studies in the satisfaction of Koch's postulates, the exciting causative agents for a series of infectious diseases were disclosed. The etiology of a given disease afforded a cogent point for attack, but shortly the limitations of this approach became apparent. Ehrlich's side-chain theory was a provocative link in contemporary thought and study, but his magic bullets (antibodies) did not prove to be the panacea that had been anticipated. However, his discovery, with Hata, of arsphenamine (Salvarsan) for the treatment of syphilis was the first breakthrough in the application of an agent that destroyed the invading pathogen without harming the host. There followed a period of frantic search for substances with an analogous action against bacterial invaders.

Meanwhile, the advances in physiology, physiological chemistry (including the more esoteric fields of chemistry such as physical, enzyme, and steroid), and pharmacology were leading the practice of medicine perceptibly to Claude Bernard's characterization. The spectacular entrance of the sulfonamides and antimicrobial agents on the scene reoriented the clinician in the etiologic requirements of practice. Radioisotopes vastly expanded his vista in physiological and clinical studies. The new tool of tagged elements afforded an unprecedented insight into such basic functions as calcium, iodine, protein, and iron metabolism. Upon closer scrutiny, many of these observations merely served to refine earlier principles. The discovery of adreno cortical steroids initiated an astounding expansion of the knowledge of the physiology of this gland and its relationship to organs and tissues, connected and removed. In few other areas have the basic studies had a closer or more prompt application to clinical medicine. Hereditary traits and the actual transmission of derangements of bodily structures have long been observed. Orderly studies in medical genetics are, however, a development of the present generation. Already inborn errors of metabolism, mental deficiency, and certain organic faults have been traced to faulty chromosomal patterns. Traditionally, the physician experiences some difficulty in assimilating a new area of scientific study and understanding. The unfamiliar language and vocabulary of the geneticist shortly will become a working tool of the practitioner as he gains confidence in his competence in this area.

The past generation has seen surpassing advances in anesthesiology. With scientific teamwork among physiologists, pharmacologists, and anesthesiologists, a technological approach to this important area now assumes its appropriate place among the clinical sciences. After this limitation had been removed, or at least minimized, there remained the threat of wound infection. True, notable contributions had been made from the antisepsis of Lister to the asepsis of modern surgery, but the danger persisted and technical growth was impeded by postoperative infections under predictable conditions. With the discovery of the efficacy of sulfanilamide against gram-positive cocci, new hope arose. The replacement of the sulfonamides by penicillin marked a further advance, to which significant steps have been added by the discovery of many other antimicrobial agents. A dramatic contrast was afforded by the limited supply of penicillin in World War II. Such penicillin as was available was given to the American sick and wounded of the armed forces. In southern England, a United States Army general hospital was set up immediately across the road from a prisoner-of-war hospital. With available penicillin, the wards of the American hospital were free of offensive odors, whereas the prisoner-of-war wards, lacking antimicrobial therapy, reeked with the heavy odor of suppuration, reminiscent of World War I when the olfactory sense was widely employed in directing the treatment of war wounds! The emergence of resistant staphylococci in the setting of the hospital has kept us humble and relatively clean. To this time there has been no suggestion of a congressional study such as the book *Silent Spring* incited in the use of insecticides.

With the support of advanced anesthesia and antimicrobial agents, not only has surgery consolidated its position in the abdominal and neurological fields but it has sought new worlds to conquer. The first of these areas to capitulate was the lung, where infection had been a limiting factor in World War I. The availability of streptomycin and other antituberculosis drugs, particularly, was to prove most important in a protective sense. The cardiovascular system was the last anatomic stronghold to resist surgical attack. The brilliant successes that have attended the surgical correction of congenital and acquired structural defects of the major and more peripheral arteries are some of the brightest pages in medical progress. Eventually all components of the heart, beginning with the pericardium.

then the endocardium, and finally the myocardium, have come under surgical reparative attack. One of the major contributions to the success of intracardiac surgery has been the assurance of effective extracorporeal circulation that permits a direct approach to affected valvular or septal fault. A number of prosthetic devices have been developed for the correction or replacement of defective valves. It is merely a matter of time, experience, and ingenuity until the ideal substitute is found. Visceral transplantation has intrigued man for centuries. The rejection of homologous tissues and organs after an apparent "take" has baffled man's attempts in grafts and transplants for years. From an understanding of the basic principles involved has come a plan of procedure that minimizes the rejection reaction and permits the successful transplantation of lung, liver, and kidney. Indeed, so confident are the workers in this field that they maintain that eventually hemodialysis will be mearely a preparation for renal transplantation. Philosophers are projecting the moral as well as the psychological impact of such human chimeras as may ultimately emerge from such procedures.

All of this indicates the increasing complexity of the modern practice of medicine. If this were not enough, the armamentarium of the modern physician includes the vital support of the laboratories and radiological department with the burgeoning force of their refined methods. The intelligent use of these important services, while indispensable to the proper practice of medicine, constitutes one of the serious paradoxes of the day. Unfortunately, impressed as clinicians are by the objectivity of many laboratory determinations, they seek refuge in blanket requests for laboratory examinations without discriminating thought of their applicability to the problem at hand or their cost. Truly the laboratory has made cowards of us all. The time is ripe for self-analysis in this matter. Basically the clinical pathologist and the roentgenologist are our personal consultants and should be so treated. Every consultation request should have our studied consideration with relation to the clinical problem at hand. Viewed in a detached judicial light, they fall naturally into 3 groups, that is, those essential, desirable, and excessive to the needs of the situation. If the individual request is put to this test, the results will prove much more useful. The staff of a hospital with a teaching program may seek refuge in rationalization on the specious score of the completeness of study, whereas in truth they should afford guidance to the rising generation by the intelligent economy of greatly abused resources. It is necessary to strive for a balance in the application of scientific methods to clinical practice.

Inexorably, medicine is being swept into the maelstrom of automation. In the interest of accuracy and time, many laboratory procedures naturally are coming under automation as a realistic solution to the growing load. The application of electronic measures has invaded the clinic in increasing degrees for cardiologic, central nervous system, auditory, and other routine studies. The monitoring of blood pressure, pulse, respiration, and electrocardiography by telemetry is commonplace in many clinics. The spectacular success of an implanted cardiac pacemaker has minimized the terror and danger of the Stokes-Adams syndrome in auriculoventricular heart block. Automation has been extended to the dispensing of drugs and to the control of certain operational elements of the modern hospital. Toynbee said, "Can computing machines come to the rescue of human minds that are in danger of being drowned in an ocean of information?" For the hospital record, at least, an early answer may be anticipated. Several agencies, federal and private, are assiduously applying data-processing techniques to this important aspect of the hospital operation. Revolutionary changes may be anticipated, and we must be prepared to implement them in the interest of improved service. Projected a step forward, similar methods are being pursued in the diagnosis and prognosis of disease. Promising as such prospects may be, their ultimate utility will rest upon human intelligence. The retrieval value is obviously dependent upon the accuracy of the input. Strictly quantitative information lends itself readily to arbitrary coding and programming, whereas many clinical data are subjective. Herein lies a zone of human judgment that renders the process less exact. Be that as it may, the next generation will witness a drastic modification of the clinical approach and procedure through automation.

Insidiously, yet inevitably, medical practice has been confronted by the changing social philosophy of the public. Admittedly, medicine has not kept pace with the trend. Yet as early as 1909, Henry Baird Farvill, in a prophetic speech before the alumni of Rush Medical College, had sounded the advance, "The pathology of society is as much the responsibility of the medical man as the pathology of disease." Instead of taking the initiative in the frontal attack on the problems with the evaluation of appropriate remedial measures, organized medicine remained aloof. Now this situation has become a major political issue in which the smoke of the emotional emanations befogs the light of reason. Indeed the programs of hospitalization and of the care of the infirm and aging citizens have lost a measure of their humane motivation in the clouds of political expediency.

The rising generation must recognize its place in the body politic. The attitude of isolationism on the part of our profession has incurred the debt of public misunderstanding that we must discharge without delay. Its first concession is an appreciation of the interdependence of all forces interested in the health of our citizens. Health is not the exclusive vested interest of any segment of the population. Yet, in the past, medicine has grudgingly lent its support to community health enterprises. The more recent coordination of effort by all interested elements of society has paid great dividends in the improvement of public health and welfare. This bridgehead will be consolidated and extended by thoughtful, public-minded physicians of the future.

Within organized medicine there has arisen a new force in the past half-century. When life was simple and medical societies less formal, the officers of organized medicine, with committee support, sufficed to meet the requirements of more or less orderly procedure and operation. As our membership grew and legislative and other extraprofessional functions cast their shadows on us, the necessity for lay support in key positions became apparent. At first, legal advice was extended from the occasional opinion to meet a passing issue or to influence legislation. Soon such counselors were retained on a full-time basis by many state medical societies. The lay secretary has established his important function in a majority of the state medical societies. In this capacity, more and more duties have devolved upon him. The inevitable result is the development of a highly organized secretariat that soon becomes indispensable. Moe aptly expressed the situation: "In your own world, I fear your little administrators, and especially your would-be administrators, your coordinators, your integrators, your setters-up of plans and charts and tables of organization and mechanisms. You are letting the smart operators get into the drivers' seats."

So eager is the busy practitioner to avoid the tedium of medical organization that he has abrogated many of the former obligations and prerogatives of keeping our house in order and representing the position of medicine to the public and to legislative bodies. Admittedly the advice of staff members skilled in the law and in public relations is necessary to orient our representatives in a modern society, but the true image of medicine can never be conveyed to the public by anyone except the physician. In a singular aspect of the activities of state and county medical societies, the influence of the lay secretariats has been manifested. Traditionally these societies have afforded a forum for scientific and clinical discussions. Insidiously, so-called medical economic subjects came to monopolize these programs. The discussions that usually were led by laymen involved the monetary affairs of medicine, insurance, and hospitalization and rarely entered into the basic principles of the socioeconomics of medical care. Admitting the increasing demands of the required attendance of busy practitioners upon hospital meetings, we see a heartening sign of the times in the greater thought and attention being given to the scientific contents of county and state medical meetings. To paraphrase Zinsser, "The administrative camel [must not] crowd the intellectual pilgrim out of his tent."

The occasion does not admit of a comprehensive discussion of the manner of practice of the oncoming generation of physicians. The period following World War II has witnessed a tremendous upsurge of the hospitalization of the sick and afflicted. Prepayment health and hospital insurance has contributed materially to this movement. Patently there are advantages both to the patient and to the physician in the centralization of such medical services, but to our dismay certain deterring factors arise from this approach. No complete answer to problems of the very short- or the very long-term illness has been derived. By court action insurance carriers are relieved of the financial responsibility for their beneficiaries who obtain medical care in certain tax-supported hospitals. By this decision, the companies (and their insurees) are relieved of this obligation and are granted a bonus that all other taxpayers cover in their hospital care. Unnecessary hospitalization is an abuse of the covering insurance which will constitute a major problem of the future in this area. The mounting cost of hospital care not only threatens the security of the program but affords a vulnerable point of attack by proponents of compulsory governmental insurance. The Achilles heel in the medical crisis that led to the adoption of state medicine in Great Britain was not the medical profession but the voluntary hospital system.

In our connections with the hospitals of the community, we are regularly confronted by the interdependence of the several interested elements. Admittedly, these institutions are designed for the care of the sick and disabled. Rarely have they been erected independently by physicians. Their sustained support in a majority of instances depends upon public, private, and sectarian funds. Accepting the joint partnership of the participating members of modern society in health affairs, we should welcome their active interest and counsel in the administration of the hospitals. In certain quarters of our profession, physicians have been reluctant to accept this basic tenet when, in the last analysis, sources outside of our ranks are affording physicians the physical plants and facilities for their practice. Perhaps the adoption of the radical suggestion of a charge to the physician for each patient-day of hospitalization might bring this issue into proper perspective.

Since the prospect of the utilization of hospital care appears to be increasing for the early future, attention should be directed to certain problems, great and small, inherent in the situation. Middleton said, "Almost inevitably, in the mechanization and sophistication that we term the modern hospital, there has arisen a certain impersonality that threatens its greatest service to humanity." Indeed, the larger and more complex the hospital organization, the more abstract and removed from the intimacy of the environment in which the disease had its seeding is it apt to be. In recent years, many advances have been made to relieve the chill of the hospital setting. In a satirical mood, Ruark was constrained to write: "Hospitals are not run to heal the sick. They are run for the convenience of nurses, technicians, doctors, and dieticians, who are paid varying salaries to torture the patients into exerting will power to escape with a breath of life still in their labored bodies." Appreciating the excesses of this generalization, every physician should lend his efforts to correct manifest faults in our hospital routines in the primary interest of improving patient care.

From personal experience, hospital routines are traditionally so deeply rooted as to be difficult to change. Yet the very intimate detail of dispossession of personal belongings upon admission can be quite distasteful unless its protective design be explained. The schedule of hospital hours is quite peculiar to that setting. Few patients accept the early awakening and toilet with equanimity. Perhaps the most frequently expressed objections are to the diet. Since this element of the patient's care is therapeutic, periodic surveys of the rejected foods on the returning trays by the attending physician can be quite illuminating in the interest of economy as well as nutrition. If the scheduled hours of nursing care prove a trifle unconventional and disturbing to the average patient, the vote of objection to the lack of efficiency in programming appointments in x-ray and special laboratories would be unanimous. Perhaps the hour has not arrived, but it cannot be far removed when our hospitals will operate on a seven-day week rather than a five-and-a-half-day basis. "Illness and disability know no moratorium in time," said Middleton. In the interest of sustained patient care and the utilization of precious hospital beds, these facilities will ultimately be operated on a full-time basis with an avoidance of the weekend ineffectiveness. By staggering the hours and days of personnel service, this objective can be attained with a minimum of trauma. Meanwhile, a careful assessment of all routine procedures affecting patients should be initiated by every staff physician of all echelons to determine their design and the effect upon the patient. Where there has been a deleterious influence on the patient merely for a trivial and inconsequential advantage to the member of the medical team, such measures should peremptorily be modified or abolished.

Westcott's David Harum said, "A certain amount of fleas is good for a dog. Makes him forget he is a dog." If the problems of medicine, existent and projected, dismay you, my purpose will have miscarried, for the challenge and opportunities for human service in the practice of medicine have never been greater. Certainly "good methods and a proper point of view" have been instilled into you by the faculty members and preceptors. These dedicated teachers are the catalysts. You are the springs of medical strength of the future. Recently, while waiting for the elevator in the Veterans Administration Hospital, I engaged a veteran patient in a wheelchair in conversation. Two medical students chanced by and stopped to inquire of the patient's health. When they left, he asked, "Are you a teacher?" When I answered affirmatively, he continued, "Those men will be good doctors. They have the touch. They are interested in people." My anonymous friend had the answer to success in medicine. Never lose the touch. Maintain your interest in people. Keeping the faith, the future of medicine is assured in your hands.

Pulmonary and Pleuropericardial Manifestations of Systemic Lupus Erythematosus in an Elderly Male Patient

A Case Report

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New Haven

THE PROTEAN MANIFESTATIONS of systemic lupus erythematosus are well-known to the clinician today. The diagnosis is readily made when symptoms such as fever, arthritis, rash, pericarditis, pleurisy, nephritis, leukopenia, anemia, and strongly positive lupus erythematosus preparations are found. However, when only 1 or 2 manifestations confront the clinician in an older patient, the diagnosis becomes more difficult and frequently is missed for a long time or completely. Such a case is reported here.

CASE REPORT

A 63-year-old white, married, Italian male was admitted to the Hospital of St. Raphael for the first time on November 29, 1959, with the chief complaints of chest pain and fainting. Five weeks prior to admission he noted onset of left lateral, lower chest pain, present only on coughing or breathing deeply. The pain did not radiate and was not associated with effort. Its character had been aching on deep breathing and sharp only on coughing. In the month prior to admission, the patient had a 20 lb. weight loss associated with a distaste for all food. One day prior to admission he was seen by his family physician who noted signs consistent with a left pleural effusion. There was no history of shortness of breath, swelling of the ankles, joint pains, skin rash, or sunlight sensitivity. He admitted to recent onset of night sweats. The patient had enjoyed good health all his life, owned his own printing shop, and had worked regularly until the time of his illness. The family history was noncontributory. Physical examination revealed a well-developed white male who looked well and in no apparent distress. The blood pressure was 120/60 mm. Hg, the pulse 86, temperature 99° F. There were no skin rashes and his ears, nose, throat, and eyes were not remarkable. Examination of the lungs revealed bilateral fine basilar rales with diminshed fremitus and impaired percussion at the left base. Auscultation of the heart was negative for murmurs or friction rubs. The remainder of the physical examination was noncontributory. The laboratory findings on admission revealed a hemoglobin of 12.5 gm., white blood count 5,400, 59% polymorphonuclear leukocytes, 32% lymphocytes, and 9% monocytes. Urinalysis was normal. The fasting blood sugar and serum electrolytes were normal. The blood urea nitrogen was 36 mg. percent. A liver battery included cephalin flocculation 4+, thymol turbidity 3.7, alkaline phosphatase 9.4 (Bodansky units), serum glutamicoxaloacetic transaminase 63, total proteins 7.40 gm. per 100 cc., serum albumin 3.50 gm., globulin 3.9 gm. The serum iron was 74 μg. percent, and serum cholesterol was 141 mg. percent. The bromsulphalein test revealed 16.9% retention after forty-five minutes. Three lupus erythematosus preparations were negative. A bone marrow, gastrointestinal, and gallbladder series were normal. The patient continued to exhibit a febrile course (Fig. 1) but the chest pain subsided after a diagnostic thoracentesis was performed. Twenty-five cubic centimeters of straw-colored pleural fluid were obtained; the fluid contained no cells, no proteins, and was negative for culture for bacteria and acid-fast organism. No malignant cells were found.

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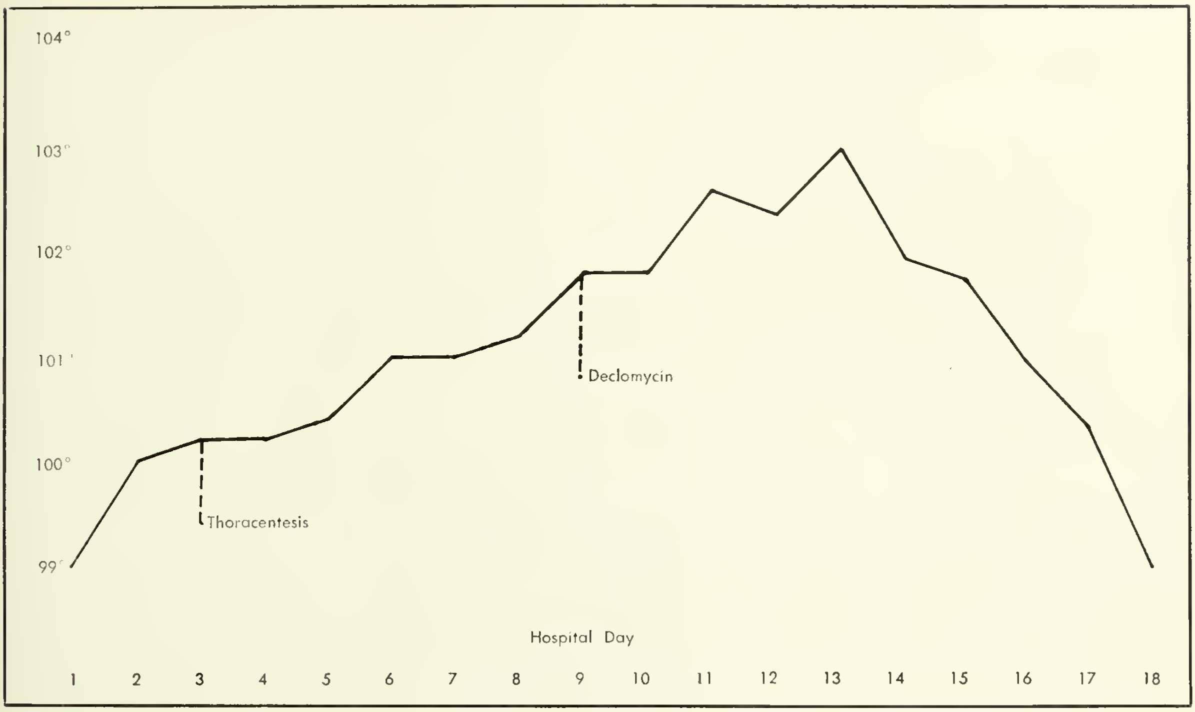

Fig. 1. Temperature chart of 63-year-old man with systemic lupus erythematosus

The patient received chloramphenicol on the ninth hospital day without apparent success. On the eighteenth hospital day, the patient had become asymptomatic and was discharged with the diagnosis of fever of undetermined origin, pleural effusion, and liver dysfunction.

The patient did well for the next six months without specific therapy. His appetite improved, he regained his previous weight, and he returned to work.

Nine months later the patient suddenly developed severe chest pain radiating down both his arms. The pain was described as constricting in nature, relieved when sitting up and bending forward, worsened by lying flat, and increased on deep inspiration. He was markedly dyspneic and diaphoretic. Upon examination the patient appeared acutely ill and in severe distress with a blood pressure of 130/90, a regular pulse of 100, respirations of 32, and a temperature of 101° F. There was evidence of left pleural effusion. A complete blood count revealed a white blood cell count of 3,050 with 80% polymorphonuclear leukocytes, 18% lymphocytes, and 2% eosinophilic leukocytes. The patient was readmitted to another hospital on October 16, 1960, with the tentative diagnosis of systemic lupus erythematosus. An electrocardiogram performed on the day of admission revealed an abnormal tracing with nonspecific T wave changes which regressed the following day. Chest x-ray (Fig. 2) demonstrated diffusely increased bronchovascular markings throughout both lungs with some possible peribronchial infiltration in the right lower lobe. It was felt by the radiologist that this was consistent with diffuse pulmonary fibrosis and emphysema, and the diagnosis of carcinoma was entertained. The patient underwent a scalenus node biopsy which revealed diffuse hyperplasia. The hemogram on admission was white blood cells 3,100 with 72% polymorphonuclear leukocytes, 2% eosinophilic leukocytes, and 26% lymphocytes. Calcium, inorganic phosphates, and alkaline phosphatase were normal. Four lupus erythematosus preparations were

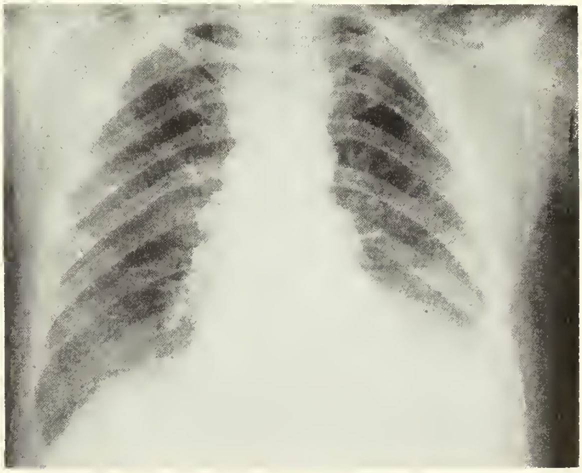

Fig. 2. Chest film showing basilar densities and atelectasis especially in the right lower lobe. Fluid is present in the left lower lobe.

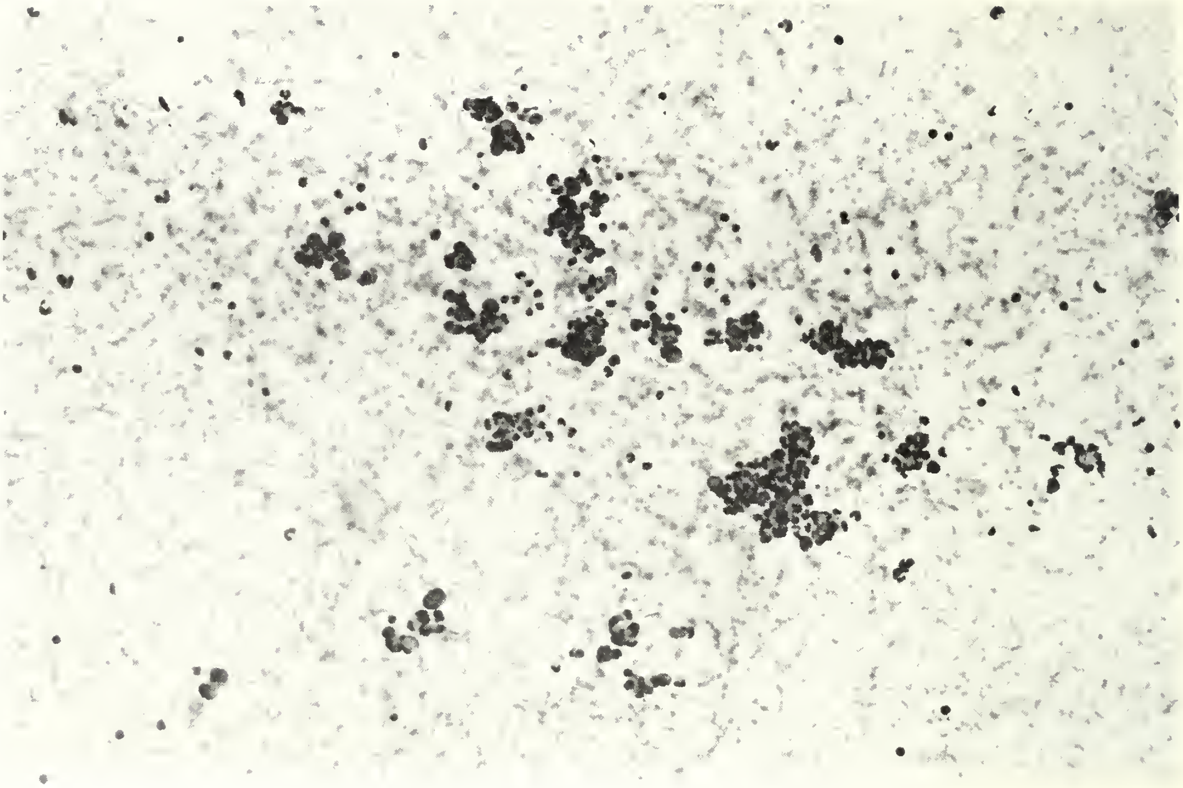

Fig. 3. Showing several lupus erythematosus cells and rosettes

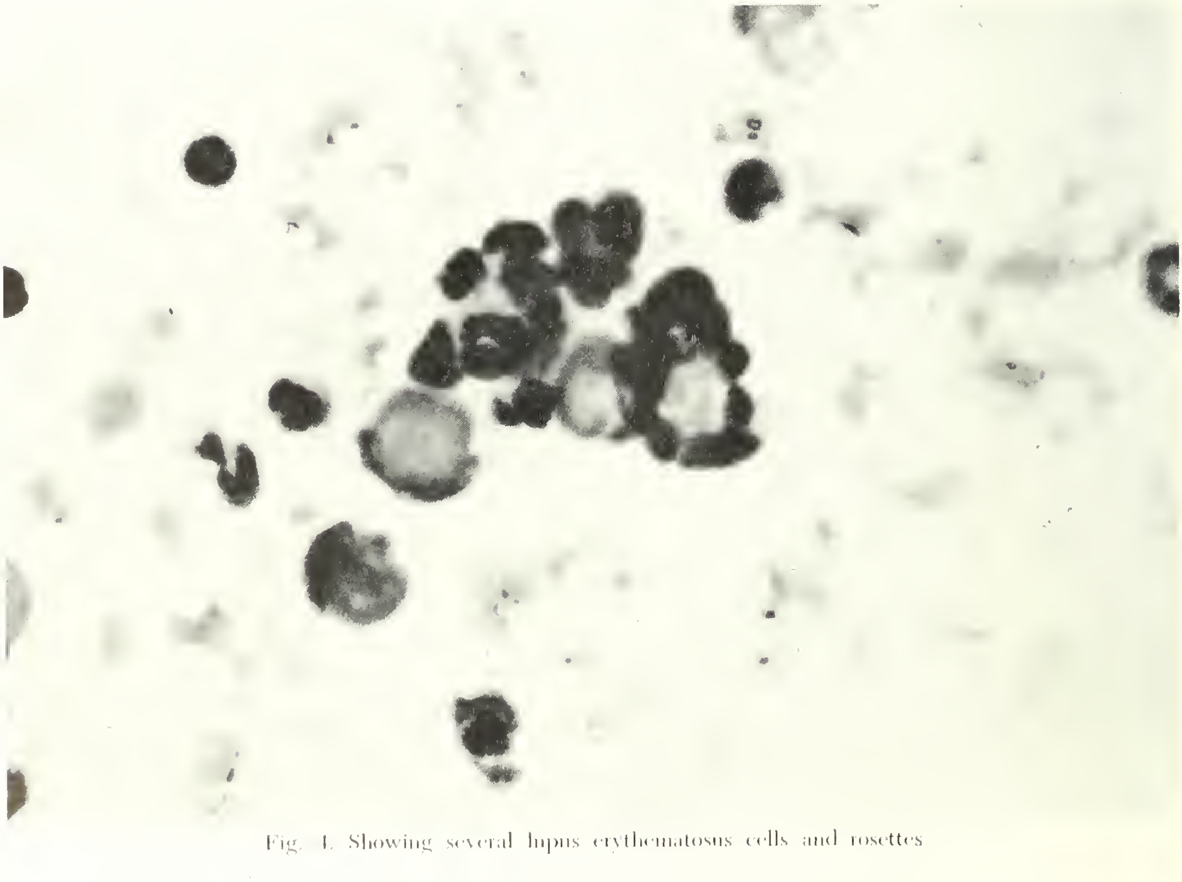

Fig. 4. Showing several lupus erythematosus cells and rosettes

all strongly positive (Figs. 3 and 4) as well as a lupus induction test of 4+ and a fluorescent antinuclear test. The patient subsequently received 20 mg. of prednisolone every eight hours and promptly became free of symptoms and was discharged on a maintenace dose of 2.5 mg. prednisolone three times daily. Repeat chest film on November 14, 1960, disclosed marked resolution of the previously noted abnormal findings (Fig. 5). The patient did very well for one year and after he had discontinued his maintenance dose of prednisolone again presented with mild chest paints, fever of 105° F., and shaking chills. He was admitted to the hospital on February 2, 1961, for the third time and placed again on 20 mg. of prednisolone every eight hours for five days. The patient rapidly improved, the chest pain subsided, and he became afebrile. He was discharged on the same maintenance dose with the diagnosis of systemic lupus erythematosus. It was felt that he had an exacerbation of lupus erythematosus with a possible "lupus pneumonitis" due to omission of medication. The patient returned to his usual occupation and has been free of symptoms, the lupus erythematosus preparations remaining negative.

Two years later, on February 3, 1963, the patient was injured in an auto accident and suffered a skull fracture and fractures of both legs. Two prolonged orthopedic procedures were required to reduce open fractures, and he withstood both operations without complications. Prior to surgery and in the immediate postoperative period he received intramuscular hydrocortisone 50 mg. every six hours and 100 mg. intravenously immediately prior to surgery. This drug was gradually reduced and the patient then received an oral maintenance dose of 5 mg. every eight hours. After discharge he returned to work, free of symptoms, and is now maintained on a dose of 2.5 mg. of prednisolone daily in 2 divided doses.

DISCUSSION

Systemic lupus erythematosus, originally thought to be a rare and unusual disease, is found quite often, mainly because the lupus erythematosus preparations and fluorescent antinuclear tests help us to confirm the diagnosis and probably because of the increasing incidence of the disease.[1] Pulmonary and pleuropericardial lesions may be found in systemic lupus erythematosus and other collagen diseases and are, at times, the first and most outstanding findings on examination, as shown in this case. According to Israel,[2] one of the common manifestations of systemic lupus erythematosus is a lobar or patchy nonspecific pneumonia which may be recurrent, migratory, or terminal. In his series of 22 patients with the disease, 20 had evidence of pulmonary or pleural disease. Sputum cultures yielded mixed growths of the common organisms. There were obvious signs of pneumonia or the respiratory symptoms were marked by a generalized toxemia. Osler[3] had already noted in his description of systemic lupus erythematosus " . . . that the recurring skin lesions, the pleuropneumonia, phlebitis, the general glandular enlargement, and fatal nephritis were due to one and the same poison." Tumulty and Harvey's[4] study of 32 cases of systemic lupus revealed that pulmonary manifestations were frequent. Pleuritic pain, cough, expectoration, fever, and signs of pulmonic consolidation were among the chief clinical signs found in a review by Myhre.[5] Sixteen out of 18 cases of systemic lupus erythematosus had pleural pulmonary manifestations. Myhre found pulmonary symptoms were second in frequency to joint symptoms in his series. X-ray examination of the lungs showed a basilar localization of the disease process without exception. A small pleural effusion was present in all his cases. Marked improvement was attained by treatment with cortisone with clearing of the pleural effusion and apacities.

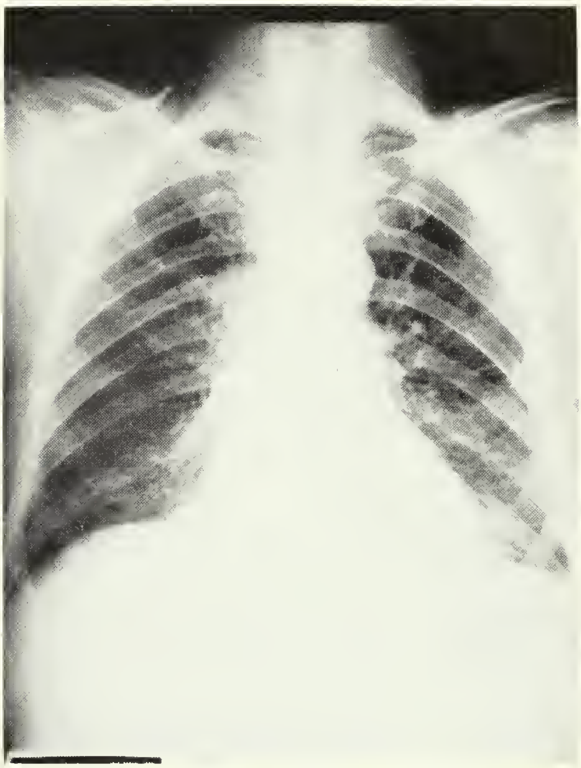

Fig. 5. Marked clearing noted

In recurrent cases of pneumonia, pleurisy, or suspected pulmonary emboli, the lupus erythematosus phenomenon should be sought. If the clinical suspicion for the disease exists, the lupus erythematosus test and other less specific tests, such as the fluorescent antinuclear test[6] should be repeated at some later date if not found to be positive initially, as there are probable periods of remission with negative lupus preparations. Repeated absence of lupus cells in the blood in the presence of other symptoms, such as recurrent pneumonitis with or without pleuropericardial involvement, should not necessarily exclude the diagnosis of systemic lupus erythematosus as not all patients with this disease have lupus cells. Thorell[7] found roentgenological signs of pulmonary or pleural involvement in 8 of 15 subjects with systemic lupus. Jessar and associates[8] documented respiratory involvement in 39% of 216 patients with the disease. Dubois[9] found pleurisy in 59.5% of his patients with systemic lupus. The importance of recognizing "lupoid pneumonitis" as an initial symptom in the disease has been also emphasized by Rubin.[10] Many authors[10-13] point out the basal localization of the lung changes in systemic lupus erythematosus as a characteristic feature. Rubin[10] feels once the significance of the roentgenological changes in the lungs are fully appreciated in systemic lupus, the chest x-ray will serve as an important aid in the diagnosis of this disease. This is especially appreciated in the present case where the patient had significant radiological changes that in retrospect can be ascribed to systemic lupus even in face of repeated negative lupus erythematosus preparations at this time. The characteristic lung x-ray findings suggestive of systemic lupus are: basal distribution, unilateral or bilateral; ill-defined opacities of varying size; a high diaphragm; and basilar atelectasies.[8]

SUMMARY AND CONCLUSION

Systemic lupus erythematosus may occur in male or female at any age. A case of systemic lupus erythematosus in a man 63 years of age is reported. His only symptoms were chest pain due to recurrent pleuropericarditis and associated pneumonitis with high fever. His chest films, read by several radiologists, were said to show at different times changes consistent with: 1. sarcoid, 2. malignancy with pleural effusion, 3. basilar pneumonitis with pleural effusion, and 4. pleuropericardial adhesions. Three lupus erythematosus preparations with first episode of illness were negative. A few months later with second episode of illness, however, this test and the fluorescent antinuclear test were strongly positive. On steroid therapy, the patient became completely asymptomatic. His lupus erythematosus preparations again became negative. He has continued to be well for four years and working actively while being maintained on 2.5 mg. prednisolone twice daily. This case reemphasizes that recurrent pulmonary and pericardial involvement may often be the only clinical manifestations of systemic lupus erythematosus, at any age in both sexes, and should be excluded, if necessary, by a trial treatment with steroids after other possibilities have been carefully excluded, even in the face of negative lupus erythematosus preparation. The tests should be repeated at certain intervals if negative.

We wish to thank Dr. D. Dock, chief of medicine, Hospital of St. Raphael, for help in preparing this manuscript.

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A Case of Hamman-Rich Syndrome Presenting with Severe Weight Loss

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SINCE Hamman and Rich[1] originally described 4 patients with diffuse interstitial fibrosis of the lungs twenty-nine years ago, the literature on this subject has grown considerably. Despite the accumulation of some 150 recorded cases,[2] the etiology and pathogenesis of this syndrome remain an intriguing mystery, and we report this case in the hope that it may shed some light on these problems.

CASE REPORT

History. A 76-year-old man, complaining of severe loss of weight and increasing breathlessness for the past year, was admitted to the professorial medical unit of the Johannesburg General Hospital on October 2, 1963. During this period, he had lost 50 lb. despite having a good appetite. There had been no nausea, vomiting, diarrhea, or constipation. In addition to the weight loss, he had become progressively weaker and now had great difficulty in moving around. Over the past year, his effort tolerance had diminished, and he was now breathless even at rest. For the past four weeks of his illness he had had a persistent nonproductive cough which had worsened in the forty-eight hours prior to admission, and he was now coughing up small amounts of purulent sputum. There had been no hemoptysis or chest pain. The patient smoked 5 to 10 cigarettes a day. Systematic interrogation did not reveal symptoms referrable to any other organ system. There was no family history of respiratory disease nor was any background of hypersensitivity determined. The patient had not been taking drugs.

Physical examination. Physical examination revealed an extremely emaciated, elderly man with sunken eyes. The pulse was 100 counts per minute and regular, while the blood pressure was 110/70 mm. Hg. The rectal temperature was 100.6° F. There was no pallor, cyanosis, clubbing, or jaundice. The patient was tachypneic with a respiratory rate of 32 per minute. The chest moved poorly on inspiration, and coarse crepitations were heard over the left lower lobe, as well as scattered ronchi throughout the chest. The air entry was generally diminished. The jugular venous pressure was raised 1 cm. and was pulsating. The maximal cardiac impulse was in the fifth intercostal space in the midclavicular line, and there was a right ventricular heave. No cardiac murmurs were audible, but P2 was increased in the pulmonary area. There was a 1-finger, firm hepatomegaly and slight pitting edema of the legs. A systolic bruit was audible over both femoral arteries. The remainder of the physical examination was negative.

Laboratory investigations. Hemoglobin was 12 gm. percent; leucocyte count, 5,700 cells per cubic millimeter; blood urea, 36 mg. percent; and serum electrolytes, normal.

Therapy and progress. The patient was digitalized and given an oral diuretic. Oxygen was administered by intranasal catheter at the rate of 3 liters per minute, and penicillin was injected intramuscularly. Despite these measures, the patient's condition deteriorated, and he died some hours after hospital admission before any further investigations could be undertaken.

Autopsy findings. An autopsy was performed eight hours after the patient died. The positive features were as follows: Both lungs showed fibrinous pleural exudate. Their weight was slightly increased beyond the normal, the left lung weighing 560 gm. and the right 620 gm. On section, the lungs showed the presence of peripheral emphysema, and both were leathery and inelastic. The smaller bronchi appeared ab-

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normally prominent and dilated. Both lungs were a little edematous, and the lower lobes showed patchy bronchopneumonic consolidation. In addition, the lower lobe of the left lung showed the presence of a small recent infarct. The heart was normal in weight. The most significant findings were the presence of a dilated right ventricle with relative incompetence of the tricuspid valve and static thrombus in the right auricle. The liver weighed 1,115 gm. and showed typical nutmeg change on section. The gallbladder contained 2 cholesterol calculi but otherwise appeared healthy. The spleen was slightly enlarged and showed mild congestion. Both kidneys showed the presence of a mild degree of senile nephrosclerosis. The prostate gland showed the presence of benign adenomatous hyperplasia.

Histology. Sections of the lungs showed the presence of a recent infarct in the left lower lobe as well as a purulent bronchopneumonia involving the lower lobes of both lungs. The rest of the lungs showed a striking picture of generalized interstitial fibrosis with destruction of the normal pulmonary architecture. The alveoli were lined by a hyperplastic epithelium consisting of large cuboidal to columnar cells with large vesicular nuclei. Many of these cells showed degenerative changes and necrosis and were lying free in the lumen of the air spaces, together with numerous red blood cells and hemosiderin-laden phagocytes. Lymphocytes, plasma cells, proliferating fibroblasts, and occasional eosinophils were seen scattered throughout the interstitial tissue. Special stains revealed a marked increase in elastic tissue. Pulmonary edema was mild, and there was no evidence of hyaline membrane. Many of the bronchioles showed abnormal dilation with hyperplasia of the epithelium. There was no evidence of any etiological factor to which the diffuse fibrosis could be related (Figs. 1 and 2). Sections of the liver showed evidence of chronic venous congestion. Sections of the kidneys showed mild senile nephrosclerosis, while the prostate showed benign adenomatous hyperplasia. Sections of the thyroid gland showed the presence of a small Hürthle-cell adenoma.

DISCUSSION

The clinical and pathological features of the Hamman-Rich syndrome have been extensively dealt with in a number of excellent reviews,[3,4] and it is not the purpose of this commentary to repeat them. Some interesting points, however, do emerge which merit brief discussion.

With the advent of increasing numbers of reported cases of the Hamman-Rich syndrome, the need for accurate diagnosis is clearly evident in order to avoid this condition becoming a dumping ground for unexplained respiratory diseases. Furthermore, as pointed out by previous workers,[5] the special problems of clinical management, especially in relation to therapy with the adrenocorticosteroid hormones, make the clinical diagnosis a matter of more than academic importance. Histopathological criteria alone are not adequate, for the list of proved etiological agents that can cause diffuse interstitial pulmonary fibrosis is quite voluminous and includes exposure to silica, graphite, bauxite, asbestos, smoke-bomb fumes, various metals, emery wheel and leather dust, radiation, and therapy with busulfan and hydralazine. We would thus emphasize the need to fulfill the other criteria by which this syndrome is defined. Of importance are: (1) relatively short history of respiratory disease, (2) progressive course resulting in ter-

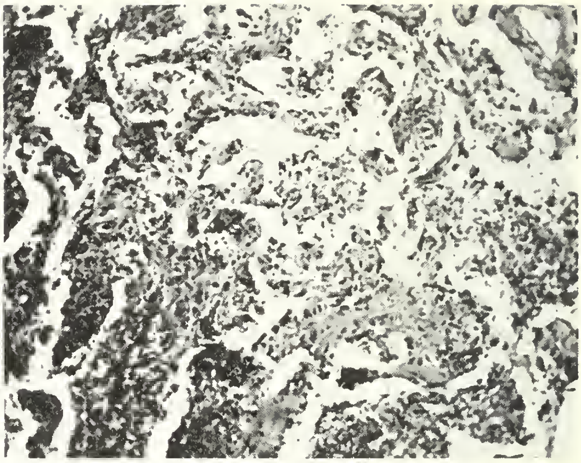
Fig. 1. Note dense interstitial fibrosis resulting in complete distortion of pulmonary architecture. Hematoxylin and eosin, × 80

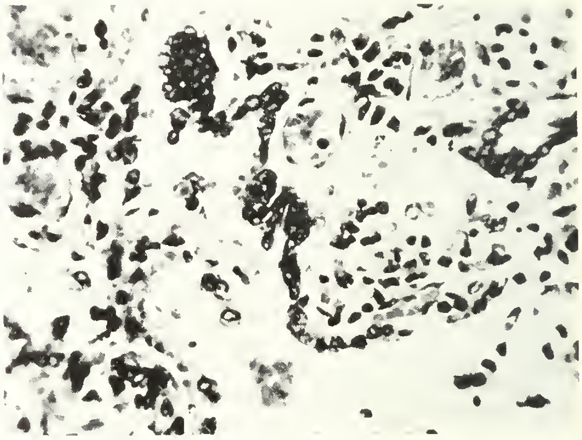
Fig. 2. Note markedly hyperplastic epithelium lining terminal air spaces, with some nuclei showing pyknosis. Hematoxylin and eosin, × 320

mination through cor pulmonale or respiratory failure, (3) involvement of both lungs diffusely, although involvement of single lobes has been reported,[4,6] and (4) elimination, as far as is possible, of any known etiological agent. On this basis there would seem little doubt that our case represents one of idiopathic progressive diffuse interstitial pulmonary fibrosis, although it is unfortunate that, due to the gravity of the patient's condition and his rapid death, pulmonary function tests were not able to be carried out to demonstrate the alveolar-capillary block that is so characteristic of this syndrome.[7]

Of great interest clinically was the dramatic history of weight loss amounting to 50 lb. in one year, which was the presenting symptom. The incidence of this symptom in the literature varies from 22% in the 54 cases analyzed by Rubin and Lubliner[3] to 63% as quoted by Van Ordstrad.[8] The amount of weight loss usually is not recorded, but the severest we have been able to trace is that of 25 lb. in two years in one of Hamman and Rich's patients.[9]

These figures indicate that pulmonary cachexia is not an uncommon feature of this syndrome. Of further interest is the patient's age. Although not within the generally given age distribution of this disease, it is to be noted that two-thirds of Rubin and Lubliner's[3] series were in the sixth decade and older. The oldest patient previously on record was 75 years.[4]

From the pathological viewpoint, the case presents no unusual features. Histologically most of the diagnostic criteria are fulfilled. The absence of significant edema and of hyaline membranes would indicate a late stage of the disease in which the fibrotic and epithelial changes predominate. The presence of a terminal suppurative bronchopneumonia is very common.

The etiology of the Hamman-Rich syndrome remains an enigma, although numerous theories have been proposed. The most discussed at present are: (1) the infective, (2) the hypersensitivity, and (3) the collagen disease theories. There is no evidence of any of these factors having been operative in this case.

We should like to thank the following: Professor B. J. P. Becker, for his advice and criticism; Professor G. A. Elliott, for permission to publish details of the clinical record; and Mr. A. Shevitz, Mr. D. Treurnich, and Miss B. Kemack, for technical assistance.

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NONCELLULAR PREPARATIONS OF SPLENIC TISSUE, injected into either adult or newborn mice, induce specific immunologic tolerance of skin homografts. Permanent or prolonged survival of homografts is effected by repeated injections. Dose and route of administration are important to response: One intravenous injection of the equivalent of 1 disrupted spleen is ineffective, whereas 4 injections of the same amount of tissue are highly effective in inducing tolerance. Results include permanent acceptance of male skin by female C57 mice, frequent acceptance of homografts across weak nonH-2 histocompatibility barriers, regular tolerance of tumor homografts across strong H-2 barriers, and occasional acceptance of homografts in genetically unrelated strains.

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Donald J. Cowling

J. ARTHUR MYERS, M.D.
Minneapolis

The heights by great men reached and kept
Were not attained by sudden flight
But they while their companions slept
Were toiling upward in the night.
LONGFELLOW

To quote Dr. Donald J. Cowling, "this is the finest country in the world. There never was a country like it before, and I don't think there ever will be again."

With this deep rooted conviction, he early projected his own life to take advantage of the opportunities his adopted country offered. Born of a modest, ministerial family,[1] which migrated to Pennsylvania from England, he found this a land of opportunity for those who worked hard to reach their goals. With an agile mind filled with many questions and a great unrest, there was a compelling urge to locate the answers. To reach a depth of understanding, he entered college and maintained the highest scholastic standing. Through every college course, through every moment of introspection, he found the same answer, "That free men will fashion a well-ordered society if they are taught to think and act in terms of the common good." From this premise he further deduced that the "prime purpose of a college is the intellectual and spiritual development of its students." He gained scholarships which enabled him to secure 5 earned college degrees: A Bachelor of Arts degree at Lebanon Valley College[2] and Yale, and a Masters in Arts, a Masters in the School of Divinity, and a Doctorate in Philosophy from Yale.

Armed with many degrees in broad, yet related fields, he sought an acadamic post. Successful in his search, he has held but 2—one for three years, the other for thirty-six years.[3] In 1906, at Baker University, he accepted the position of Assistant Professor of Philosophy and Biblical Literature. At the end of the first year he was raised to the rank of Professor and continued as Professor of Philosophy for two years more. His second opportunity was the presidency of Carleton College, 1909, at the age of 28. Thus, in three short years he stepped from being a student to directing others to carry out the ideals which he held so dear.

His ideal small college was to foster the study of literature, philosophy, and cultural rather than technical science, in a Christian atmosphere.[4] During his presidency Carleton developed one of the most beautiful campuses in the country. The college grounds include nearly a thousand acres. While not overlooking the physical aspect of a college, Dr. Cowling bore down upon the intellectual and spiritual development of the student —the prime purpose of the college. There were not more than 300 students at the college when Dr. Cowling became president. On his retirement the student body had increased to 900. The college and the youth (he was mistaken for a freshman shortly after his arrival on the campus) grew in stature together. During the thirty-six years he presided over the college it grew into one of the nation's leading liberal arts colleges. Likewise, Dr. Cowling came to be recognized as one of the leading educational statesmen of his time. His concern for education was far reaching and deep. He was president of the Association of

American Colleges from 1918 to 1919. Recognizing the need for some national organization which could speak with one voice for all institutions of higher education, whether they were private or public, Dr. Cowling helped to found the American Council on Education.[5] The council continues to be one of the most important educational agencies in this country.

Dr. Cowling served on so many educational delegations and commissions that it would take too much space to record them here.

He has an unusual capacity for friendship and for securing the concern of people for projects in which he is interested. He was an innovator. He pioneered in the financing of dormitories by floating bond issues on which, by the way, there was never any delay in interest payments during the dark days of the depression. Today this method of financing self-supporting service properties has been almost universally adopted by both independent and tax supported colleges and universities.

Dr. Cowling recognized the fundamental importance of teaching. To him Carleton College was primarily a society of teachers. He dedicated himself to finding great teachers and then leaving them free. The growth of Carleton College is a reflection of this philosophy.

Having reached the retirement age of 65, President Cowling insisted upon leaving Carleton. His thirty-six years of service to Carleton College were characterized throughout by dedication. Nowhere is Emerson's statement that an institution is but the lengthened shadow of a man more apt than at Carleton College. There is no building or physical symbol of any sort on the campus named for Dr. Cowling. This reflects his insistent wishes. He left Carleton with no loss of vitality and his usual perseverance. New horizons beckoned.

Dr. Laurence M. Gould, who succeeded Dr. Cowling as president, characterizes his own term as president of Carleton, as well as that of Dr. Cowling, by saying: "When I came to Carleton College in 1932 as professor of geology, it was my intention to remain not longer than two or three years before going on to a larger institution. I soon fell under the spell of Dr. Cowling's friendship and the satisfying experience of teaching in a small liberal arts college like Carleton. The friendship which began then has endured without interruption, and when I retired as president of Carleton College after seventeen years, having directly succeeded Dr. Cowling in 1945, I could say with complete sincerity: We are coming to the end of a single administration which covers fifty-three years of the life of Carleton College. All I have tried to do in the seventeen years of my presidency is to build directly upon the foundations which Dr. Cowling had left for me. If the stature of the college is greater than it was in 1945, it is due in large part to the secure foundations laid by my predecessor."

A former student of Carleton College, Atherton Bean, executive vice-president of International Milling Company, gives a glimpse of what it meant to be a Carleton student. "My memories of Dr. Cowling go back a good deal farther than my acquaintance with him, for I recall as a boy hearing my father speak with admiration about the extraordinary man who was running Carleton College. Later I decided to go to Carleton and there it was my good fortune to come to know him well. I can still see the delight with which his appearances in chapel were greeted by the student body, and how, in the midst of a lucid exposition of a most serious theme, he would point a moral with a hilarious story (for jokes flowed with wonderful ease out of a memory as capacious for humor as for educational philosophy). I remember too, how many, many nights I saw the lights burning late in his Laird Hall office as he worked on the wide range of college and national problems in which he was involved.

"Donald J. Cowling had become president of Carleton at the age of 28 and in thirty-six strenuous years his vision and energy turned a mediocre, middlewestern, small-town college into a national model of superior education and good management as well.

"Elsewhere I am sure someone will describe how, after turning over his college responsibilities to a distinguished successor, he moved, without hardly a moment of rest or skipping a step, on to the great public projects that have filled the last nineteen years. But I want to be sure that I leave a picture of a friendship that began in my youth (and has lasted now for almost forty years) of a fascinating conversationalist, a witty, charming, after-dinner speaker, a fantastically persuasive promoter of good causes—and above all, a warm interested person whom I consider it a most remarkable kind of personal good luck to have known him so well, so long."

The long service of the Cowlings to the college is memorialized by the Donald J. and Elizabeth S. Cowling Scholarship Fund. Friends of Dr. Cowling wanted some further permanent memorial to him at the college. This concern resulted in the establishment of the Cowling Foundation in Philosophy—which was Dr. Cowling's field of scholarship. The income from the accumulated funds is used to bring scholars from all over the world to spend a term or more at the college. Here is a fitting memorial which will not be eroded by time.

Dr. Cowling has traveled widely to broaden his outlook and understanding. His affiliations with many educational, religious, political, and health programs have taken him to almost every state in the union. Abroad he has visited Europe, Egypt, Palestine, and Turkey. In 1928 he went to Russia as a member of the educational mission of which Dr. John Dewey of Columbia University was chairman. He found the Russian people gracious and kind. "The trouble isn't with the Russian people, it is their government," he stated. He also made trips to Mexico, Cuba, Panama, and many countries of South America. He took an active interest in the missionary work of the Congregational Church and was a member of its Commission on Mission Programs. He served on boards of theological seminaries. He was twice president of the Congregational Conference of Minnesota, and from 1948 to 1950 he was moderator of Plymouth Congregational Church, Minneapolis, of which he is a member.

Dr. Cowling has lived and continues to live a full life. He relates he has always had excellent health. In the whole of his Carleton College tenure he did not miss a day except for the time when he conducted college business from his living room (with a secretary taking notes outside an open window) due to an untimely case of mumps contracted by kissing his daughter goodnight. He has maintained a modest way of life on his Carleton pension, refusing, under all circumstances, any income or compensation for his services.

"Dr. Cowling is always a great addition to any gathering. Wise in the ways of the world, his mind well stocked with rich stores of information, events, and history, he always lends, in his inimitable manner, something pertinent and significant which enlivens and enriches every discussion of which he is a part. Moreover, his remarks are always punctuated with a singularly appropriate story, a circumstance which endears him to all audiences."[6]

There is never any surprise that he invariably takes the occasion to share with others the truths he, himself, feels so deeply. Some years ago he spoke on the subject, "What Did Our Forefathers Try To Accomplish? Said Dr. Cowling, "Our forefathers wanted freedom to worship God. They believed that every man, woman, and child is a sovereign creature endowed with capacities shared by no other form of life, and that at the center of every individual's life is the capacity to make choices, which is the basis for the moral life and which sets off mankind from all other creatures. Man is a spiritual being.

A new start in history was made when our American government was founded. The ideals and principles were old and even in the Declaration of Independence were expressed in phraseology with which Europe was familiar. What was new was the agency which the founders of our Republic constructed to make these principles and ideals a living reality among us. This agency was our federal government which was brought into being by the adoption of the Constitution. No previous government had ever accepted as its chief purpose the creating and maintaining of conditions under which men might be free—which is the one circumstance necessary for the realization of moral and spiritual values."

The University of Minnesota recognizes in Dr. Cowling one of its staunchest supporters and dedicated friends. Laird Bell[7] so aptly said, "While Carleton College will always properly be Dr. Cowling's greatest single achievement and his finest monument, the University of Minnesota may also—and does, indeed—claim him with pride and deep gratitude."

When the University of Minnesota confers honors and degrees upon its favorite sons there is no question left unanswered about the worthiness of the recipients. He is the only man to have received from the University of Minnesota its 3 highest honors: the degree of Doctor of Laws in 1945, Builder of the Name Award in 1954, and its Regents Distinguished Service Award in 1958.

Dr. Cowling does not shrink from publicity, nor does he seek it. Honors have been heaped upon him by many groups, in many places. At the University of Minnesota an anonymous friend contributed $200,000 toward the establishment of the Donald J. Cowling Fund for Research in the Department of Surgery, with special emphasis on cancer and heart disease.

He takes pride in a recent honor which came to him unexpectedly and delighted him. He was invited to attend a luncheon given in honor of a donor to the University Mayo Memorial Fund, and to his surprise, found himself presented with a volume entitled, "Faith and History in the Old Testament," by R. A. F. MacKenzie, S. J. The inscription on the flyleaf read, "To Donald Cowling with admiration and affection. There is no way we of the University can repay him for his help, sympathy, and wise counsel, but perhaps this volume may interest and make more charming some of his quiet hours." It was signed Marion and Meredith Wilson (President of the University of Minnesota and his wife).

In honoring Dr. Cowling we are ever mindful of his years of work in heading the Committee of Founders for the Mayo Memorial to honor two of Minnesota's legendary "Greats"—the late Doctors William J. and Charles H. Mayo. This memorial was to complement the work started by the Doctors Mayo themselves in 1915 when they established, at Rochester, the Mayo Foundation for Medical Education and Research, to be affiliated with the University of Minnesota.

Soon after the deaths of the Doctors Mayo in 1939, Governor Harold E. Stassen appointed a committee to recommend a memorial for them. This committee recommended that the memorial should contribute to continuing progress in medical education and research. Dr. Cowling accepted the chairmanship of the Committee of Founders for the Mayo Memorial, authorized by joint action of the House and Senate of the Legislature during its 1943 session.

Among the public spirited citizens who served on the Committee of Founders under the chairmanship of Dr. Cowling were: Claude H. Allen, James F. Bell, Earle Brown, Walter Burdick, Mrs. George Chase Christian, Dr. George Earl, Frank T. Heffelfinger, Jay C. Hormel, Raymond J. Julkowski, George W. Lawson, Leo D. Madden, Most Reverend John G. Murray, Charles N. Orr, I. A. O'Shaughnessy, Mrs. Mabeth Hurd Paige, and Dr. Edward L. Tuohy.

Dr. Cowling, firm in his belief that each Minnesota citizen is responsible for the other, set out to practice and to convince others to evidence this responsibility. Between the years 1943 and 1950 he talked to boards of directors and private citizens. The gifts began to pour in. He is pleased to recall that at no time was a penny from the contributed funds spent on the campaigns. The cost was taken care of with the interest money from funds contributed before they were needed.

The Mayo Memorial began to be something other than a dream. Dr. Cowling, with his long experience of raising funds, found many donors from Minnesota, and throughout the United States, who were pleased to contribute to the memory of the pioneer Doctors Mayo.

The Mayo Memorial as envisioned by Dr. Cowling, the Founders Committee, and the University staff, was approved by the Board of Regents of the University. It was not only a fitting memorial to the Doctors Mayo, but the facilities raised the Medical School standard and helped to retain renowned faculty and provide adequate hospital areas. The Minnesota Legislature added its approval by providing legislated funds to aid in the erection of the memorial.

During the planning stage, costs had increased about 50% and this, together with the Korean War, meant marked delay in completion of the building. In spite of the efforts of Dr. Harold S. Diehl (then Dean of the Medical Sciences) and the committee, it was conceded that a reduction of the main building from 22 to 14 stories would be necessary. The total sum necessary to complete the building had increased to more than 15 million dollars. Through previous grants of the Minnesota legislature, gifts from corporations, and from individuals, $12,300,000 was available. A request was again presented to the legislature. The happy result was that the Minnesota legislature provided approximately half[8] of the necessary 15 million. This not only illustrates the magnanimous support the medical school, and indeed the entire university, has received from the legislators, but it was a sincere manifestation of the confidence the members of the legislature had in Dr. Cowling and the university administration.

The present Mayo Memorial 14-story tower section and the 3, 6-story wings that connect the existing hospitals and medical school buildings practically doubled the capacity of the Medical School. Better facilities now included classrooms, clinical and administrative offices, research laboratories, operating rooms, patient care areas, service departments, an auditorium, and a 2-level underground garage with parking space for 250 cars. In connection with the existing medical facilities the Mayo Memorial brought the complete medical center under one roof.

Dean Diehl wrote of his association with Dr. Cowling at this time: "To me the privilege of working with Dr. Cowling during the vicissitudes of this endeavor was an inspiring and gratifying experience. His complete selfless dedication to the responsibilities which he had accepted, his wise and resourceful leadership of the committee, and his untiring work in its behalf, constituted a magnificent and unique contribution not only to the memory of his friends, Dr. Will and Dr. Charlie, but also to the future of medicine in this area.

"This was a unique and magnificent achievement on the part of Dr. Cowling. Yet it was only a beginning; for the interest which Dr. Cowling developed in the medical school as a result of this experience led him to devote a large proportion of his time and efforts, after retiring from the presidency of Carleton College, to the development of the medical school. I will be eternally grateful to Dr. Cowling—but I am equally grateful for the privilege of knowing, of working with, and of counting as a friend, this truly great educator, public servant, and humanitarian."[9]

During the dedication dinner, October 1954, in connection with confirming the Regents Award, President Morrill said: "Donald J. Cowling, for 36 years distinguished president of Carleton College, lifelong exponent of progress and freedom in higher education, unstinting worker for the advancement of the arts and sciences, religion and international understanding, and chairman of the Mayo Memorial Committee of Founders, has converted the dream of a medical research center into an actuality."

The appreciation of Dr. Cowling's efforts in the building of the Mayo Memorial has also been expressed by Dr. Charles W. Mayo, chairman of the Board of Regents of the University. "The Mayo family, past and present, would feel slighted not to be given the privilege of paying tribute to a great and good friend of long standing. This feeling is not only because he was the spark plug for the Mayo Memorial Building, which stands on the campus of our great University of Minnesota, in service to the health of our citizens, but also because of his own persistent and unlimited efforts on behalf of his fellowmen.

"Any worthwhile movement always gets his eloquent cooperation to the limit of his ability. Aside, however, from his administrative qualifications, he has that friendliness, gentleness, and compassion that make men respect and admire him, and as my wife, Alice, would say, women love him."

With the completion of the Mayo Memorial neither Dr. Cowling's work nor interest in the University ceased. When the Mayo Memorial was cut from its original plan of 22 stories to 14 it was not only a loss to the University but also represented to Dr. Cowling a personal lack of accomplishment. As it became more evident that something must be done to make up for the cut-back, Dr. Cowling assumed this added responsibility. Diehl Hall now replaces the area cut from the Mayo Memorial. It contains, besides areas for research, the Biomedical Library.

As a 33rd degree Mason it was quite natural that Dr. Cowling became president and chairman of the Executive Committee of the Masonic Cancer Relief Committee of Minnesota. Over one million dollars was raised for the construction of the Masonic Memorial Hospital, designed for the care and study of patients with cancer in its advanced stages. The Masonic Memorial Hospital was dedicated in 1958. It is now an integral part of the hospital facilities of cancer patients at the University.

Dean Robert B. Howard, who succeeded Dean Diehl, has often expressed his appreciation of Dr. Cowling's staunch assistance. "To Dr. Donald Cowling the University of Minnesota and its Medical School owe a debt of gratitude that can not be measured, or even described, with any real accuracy. We can, of course, point to those units that have come into being because of his willingness to devote his remarkable energy and talents to their realization: the Mayo Memorial, the Masonic Hospital, the Diehl Hall Laboratories, the addition to the library, and the forthcoming hospital reference room—but no mere compilation of his tangible accomplishments on our behalf can reflect accurately the impact that he has had on the development of our school. Even more important has been the basic philosophy that has made him such an effective advocate. His unswerving dedication to selfless service has been an inspiration to all who have worked with him. Such devotion as his can only have strengthened our own purposes by its noble example.

"I count as one of the real privileges and compensations of my post the opportunity I have had to become closely associated with Dr. Cowling. His friendship has come to mean much to me and my wife. This expression of gratitude and admiration, therefore, is both personal and official but above all, it is heartfelt."

Besides taking an active role in each building program for the entire Medical School, Dr. Cowling has procured large sums of money for research in the Departments of Neurology, Surgery, (especially heart and cancer), Ophthalmology, and Public Health (tuberculosis).

In 1936, I was invited by Drs. Cowling, Light, and Dungay to act as consultant of the tuberculosis control program being carried out at Carleton College. In 1959 Dr. Cowling learned that our tuberculosis program at the University of Minnesota was financially supported by the Minnesota Tuberculosis and Health Association. His interest in eradication of this disease was so extensive that he volunteered to match the amount annually provided by the tuberculosis association by gifts from industrialists.

During Dr. Cowling's Carleton presidency, so much interest and support was shown in the biological sciences that 165 graduates later completed medical courses. Many became prominent in various fields of medicine and public health. Many continue to express their gratefulness for the splendid fundamental premedical training received.

Eivind O. Hoff, Jr., executive director of the Minnesota Medical Foundation, says, "Dr. Cowling is held in great esteem by the members of the medical profession for his extraordinary interest in medical education. On January 5, 1950, he was elected the first lay member of the Board of Trustees. He was also elected a Patron Member for Distinguished Service, one of only two holders of this foundation honor.

"Dr. Cowling is one of the founders of the Scholarship Fund of the Minnesota Medical Foundation, which began in 1949. His particular interest was in gathering scholarship funds for entering freshmen medical students who had graduated from a liberal arts college. In 1951 the foundation awarded the first 'Cowling Scholarship' worth $500 to a qualified freshman. . . . In 1963 the foundation awarded 62 scholarships, distributing an aggregate sum of $33,425. During fifteen years, the Scholarship Fund has distribtuted 384 scholarships worth a total of $199,925. Some of the greatest impetus to the growth of this fund, including raising the necessary funds from private sources, has been supplied by Dr. Cowling.

"Dr. Cowling served as a trustee of the Minnesota Medical Foundation until 1962, when he resigned. The foundation promptly elected him a permanent honorary trustee. The foundation is a non-profit organization of 2,000 members, supplying private assistance to the University of Minnesota Medical School."

The medical field has an unusual attraction for Dr. Cowling. During 1956-1959 he was on the board of the United Hospital Fund of Minneapolis and Hennepin County, through which 17 million dollars was raised for 12 hospitals and 3 health agencies.

As a member of the Board of Governors of the Menninger Foundation for Psychiatric Treatment, Education and Research, Topeka, Kansas, he has helped project its future. With this interest, he also served as state chairman, in 1955, of the Mental Health Fund of Minnesota.

Another instance shows what this man of great faith can do. He was president of the American Council on Education, Washington, D. C., organized during the World War, in 1918. As such, he directed the agency's program between the federal government and colleges and universities, Minnesota included. At the close of the war 68 colleges and universities had participated in the council's program recruiting and training 100 nurses at the request of the Surgeon General. Miss Katharine Densford, then Director of the Minnesota School of Nursing, was faced with the problem of financing a continuing program. After hearing her story, Dr. Cowling said, "I shall not be of much use if I give you only advice." He went out and found the necessary money—more than $50,000.

University Hospitals Director, Ray Amberg and Dr. Cowling shared a dream. Mr. Amberg says, "when Dr. Cowling approached the administration of the Medical School with the idea of building a Masonic cancer hospital I had not, up to that time, anticipated that any such offer would ever be made to the University. At the earliest meeting Miss Annie Laurie Baker, the hospitals' Director of Social Service, realized the importance that such a unit could become on our campus, and I, thinking along the same lines, encouraged Dr. Cowling to use all of his powers of persuasion to see its accomplishment. Well, here again, Dr. Cowling rallied the support of Minnesota Masons, the Medical School Administration, and Regents of the University of Minnesota, and led them in their drive to raise sufficient funds to erect a physical plant now known as the Masonic Memorial Hospital. The performance of this hospital has exceeded the fondest expectations of any and all who have been identified with it.

Often now, as I visit with Dr. Cowling, I marvel at the man and his spirit of unselfishness, to the cause of medical education, and to all his fellow members of mankind.

Representative of that anonymous gathering of friends of Dr. Cowling's project is Fred C. Andersen, president, Andersen Corporation and Bayport Foundation. "I welcome this opportunity to write of my friend and adviser, Dr. Donald J. Cowling, although I have neither the ability of expression nor the available space to write adequately of this truly great American.

"I believe that Dr. Cowling is among the greatest influences in our country for the upholding of the American way of life. This man—in the eighteen years since his retirement as president of Carleton College—has given freely of his time and efforts to worthy causes without receiving one cent of compensation. . . .

"Dr. Cowling's philosophy[10] of living, and what in life is worthy of support, is firmly based on his belief in the freedom of the individual under God and in the responsibility imposed on the individual. He has constantly maintained that the American way of life under the Constitution is the best possible framework for such freedom.

"This philosophy has been put to work in supporting an astronomical number of projects. In a reasonable, quiet, simple, and often humorous way, Dr. Cowling has presented to his wide list of acquaintances—many beyond the boundaries of his home state—their opportunity to support worthy American institutions, and in so doing reemphasize the responsibility of the individual, rather than the Federal Government, for the maintenance of our institutions and therefore the maintenance of a free society.

"I have a deep personal regard for Dr. Cowling, in whose view I so heartily concur. I have a great appreciation of his reassurance to me, in my times of despair at the specter of the welfare state, that free institutions will not perish from a free America.

"Through all of our rather close association with him, Mrs. Andersen and I, and our family, have enjoyed a splendid friendship and have a deep affection for the grand gentleman, Doctor Donald Cowling."

One who has worked with Dr. Cowling in the building of the Medical Center, and whose Surgery Department has been the recipient of research funds invested in the Donald J. Cowling Fund for Surgical Research, is Dr. Owen H. Wangensteen, chairman of the Department of Surgery. "A great cause has no better ally than a good friend. Certainly Dr. Cowling is one of the best friends the school has had. Principles and ideals are items that come to the surface quickly in discussions with him. Considerations of opportunism and expedience fail to reach him, but when persuaded of the soundness and worth of an enterprise, Dr. Cowling brings to its development the wisdom and counsel of a wealth of experience and spirit of dedication. . . . Any enterprise which receives Dr. Cowling's full support is already earmarked for success. It has been my great privilege and pleasure to have come to know Dr. Cowling well over the years he has played this unique role in our school. With neither official title nor emolument, Dr. Cowling has worked diligently and continuously these many years for the betterment and enlargement of influence of the Medical School. The impress he leaves upon us is one of a discerning, wise, and kindly man with a spiritual mission.

"One cannot have known Dr. Cowling, as it has been my privilege these many years, without appreciating one who has talked with greatness—yes, and with goodness, too. May the forward looking, buoyant, and life-giving spirit of Donald J. Cowling dwell in the halls of our Medical School forever!"

Dr. Cowling's ability as a philosopher, administrator, educator, and humanitarian; his superb contributions, his unquestioned character; his honesty, truthfulness, and trustworthiness in every respect together with complete absence of manifestations of jealousy or selfishness have won for him a high place among America's truly great citizens.

To encompass on the printed page what Dr. Cowling has done is like trying to bring together the puddles left by a refreshing spring rain; singly they add sparkle, freshness, and growth to the life around them; yet combine them and there is a mighty river.

The author wishes to thank Miss Dorothy Riley and Mrs. Leontine Hans for their most valuable assistance in the preparation of this manuscript.

1. Parents, John and Mary Cowling, left Cornwall, England, in 1882; son, Donald, was 2 years old. (Born Aug. 21, 1880). Three sisters were Mrs. Maud Bowman, Mrs. Blanch Ruth, and Mrs. Lillian Nabors.
2. At Lebanon Valley College, he met Elizabeth L. Stehman whom he married. They had four daughters: Mrs. Mary E. Guice, Miss Elizabeth Cowling, Mrs. Margaret Newell, and Mrs. Dorothy Burgstahler. Mrs. Cowling died in 1951.
3. President, Carleton College 1909-1945.
4. Carleton College, founded 1866 by Minnesota Congregationalists, was nonsectarian. Relationships were established in 1916 with the Board of Education of Northern Baptists and in 1923 with the Episcopal Church of Minnesota. There was no formal or legal control, rather cooperation and mutual helpfulness.
5. Samuel P. Capen, first paid president of American Council on Education, Nov. 3, 1953: ". . . Without your leadership and persuasive and persistent efforts throughout the year 1919, the council would have been just an ephemeral emergency committee, expiring once the emergency had past. I have often, in these later years, marvelled at your prophetic vision and your power to translate it into reality. For American colleges and universities it was truly a happy conjunction of the planets that cast you in the role of first chairman, for I am persuaded no other member of the original group would have had the faith and the energy to see the council through to the stage of permanent establishment."
6. Dr. Owen H. Wangensteen, chairman, Surgery Department.
7. Mr. Laird Bell, Attorney, Chicago; Trustee, Carleton College, 1944-1950.
8. Appropriations by legislature totaled 7 million dollars.
9. Dr. Harold S. Diehl (former medical school dean) senior vice-president, Research and Medical Affairs, American Cancer Society, Inc., New York.
10. He sees in voluntary giving the means most proper to an equalization of the benefits of a democratic state, both as a sound device for drawing in the extremes of privilege and for the spirit of benevolence that is engendered in the giver.

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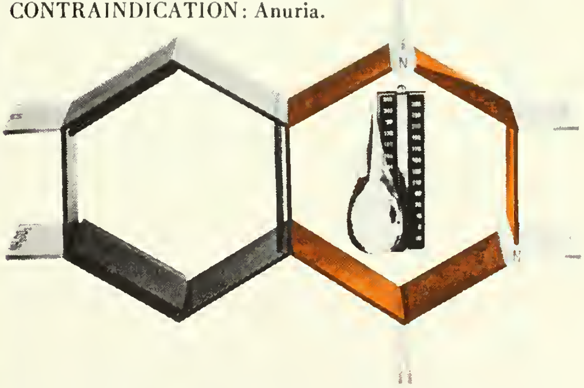

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Research in Muscular Dystrophy

edited by THE MEMBERS OF THE RESEARCH COMMITTEE OF THE MUSCULAR DYSTROPHY GROUP, *273 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. Paperbound. $6*

This volume represents papers presented at the symposia on research and muscular dystrophy in January 1963.

The book is edited by a distinguished group of members of the research committee who have done an excellent job in extracting interesting and recent advances in the studies of muscular dystrophy and other neuromuscular disorders.

The book is divided into 5 chapters: (1) "The Clinical and Genetic Studies," (2) "The Pathological Studies," (3) "Problems in the Biochemistry of Progressive Muscular Dystrophy," (4) "Biochemical Investigation," and (5) "Neurophysiological Investigation of Neuromuscular Disease."

Each participant of the conference is an authority in his field. The recent advances in the genetic studies of muscular dystrophy, as well as biochemical and neurophysiological investigation of carrier states in the muscular dystrophies, are presented clearly.

In the chapter on pathological studies, newer techniques of study by electron microscopy and the intricate study of muscle-fiber size in normal as well as in diseased states are described. A review of the terminal motor innervation in neuromuscular disease represents the latest applicable techniques.

Chapters 3 and 4 are papers on the biochemical investigations of neuromuscular disorders. Biochemical as well as histochemical studies of serum and muscle are presented.

The review of the neurophysiological considerations in neuromuscular disorders is presented both from a practical as well as a research standpoint. All in all the volume represents a very concise review of the most recent work in neuromuscular disorders, especially the myopathies. It is a must for anyone interested in muscular disorders at any student level.

J. F. JABBOUR, M.D.
Oklahoma City

Clearance Tests in Clinical Medicine

by FRANÇOIS C. REUBI, *217 pp., ill., Charles C Thomas, Publisher, Springfield, Ill., 1963. $8.75*

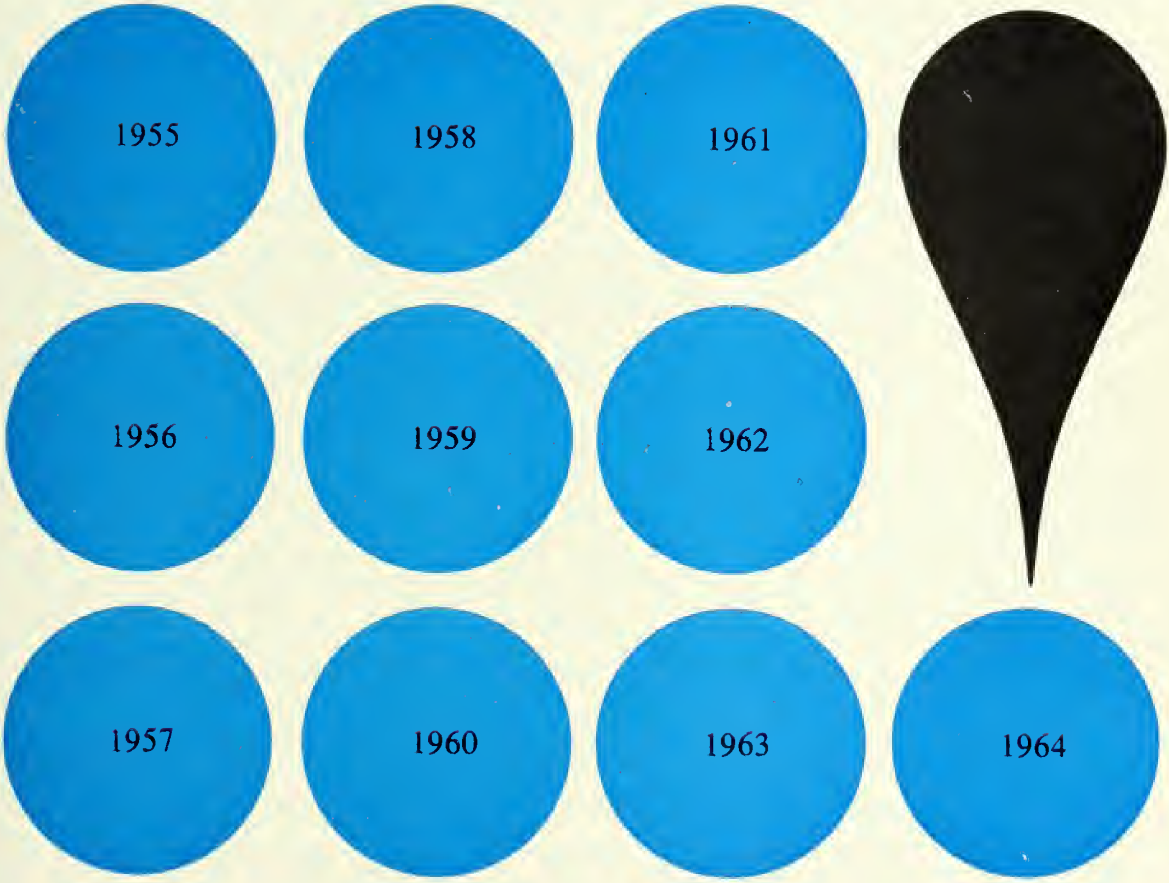
Aside from biopsy, is it possible to see the difference between a patient with advanced pyelonephritis and uremia and one with preterminal glomerulonephritis? Raaschou doubted it in 1948; a correct diagnosis was made in only 1 of 6 cases.

Professor Reubi thinks he can make the diagnosis with renal clearance tests. Actually, he makes a thin case for the clearance techniques in pyelonephritis since he relies on the rest of the clinical picture (proteinuria and blood pressure). However, he has written an impressive monograph on the pathological physiology of the kidney from the point of view of his special interest.

In many instances, the type of acute nephritis can be recognized, and the clearance tests correlate closely with the picture of biopsy. Reubi finds inulin and para-

(Continued on page 16A)

The
clear
conclusion
from
10 years'
experience...



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(Continued from page 14A)

aminohippuric acid clearances to be normal in focal glomerulonephritis, but glomerular filtration rates and filtration fraction are decreased. These physiological terms, incidentally, are clearly explained and the techniques of testing simply demonstrated in the first half of the book. The remainder of the book gives clinical applications and provides an excellent brief summary of renal disease.

In general, this book is excellent as a reference tool for research and a clinical guide. For such difficult material, the book is clearly written and well edited and illustrated. It belongs in a general medical library, particularly in the technical library of nephrologists and urologists.

FRANK ANKER, M.D.
Oakland, California

NEW BOOKS RECEIVED

Books and publications received will be listed here periodically, and such mention must be regarded as sufficient return for the courtesy of the sender. Books of special interest to our readers will be reviewed as space permits.

Smooth Muscle Tumors of the Alimentary Tract by JOHN E. SKANDALAKIS and STEPHEN W. GRAY, with DUNCAN SHEPARD and GEOFFREY H. BOURNE, 468 pp., ill., Charles C Thomas, Publisher, Springfield, Ill., 1962. $17.50

Medicine and the State by MATTHEW J. LYNCH and STANLEY S. RAPHAEL, 449 pp., ill., Charles C Thomas, Publisher, Springfield, Ill., 1963. $9.75

Hypertension and Coronary Artery Disease edited by J. H. FRYER, 112 pp., ill., J. B. Lippincott Co., Philadelphia, 1962. $4

Eat, Drink, and Lower Your Cholesterol by FREDERICK T. ZUGIBE, 208 pp., McGraw-Hill Book Co., Inc., New York, 1963. $4.95

Accident Surgery edited by H. FRED MOSELEY, Vol. 2, 374 pp., ill., Appleton-Century-Crofts, New York, 1964. $12

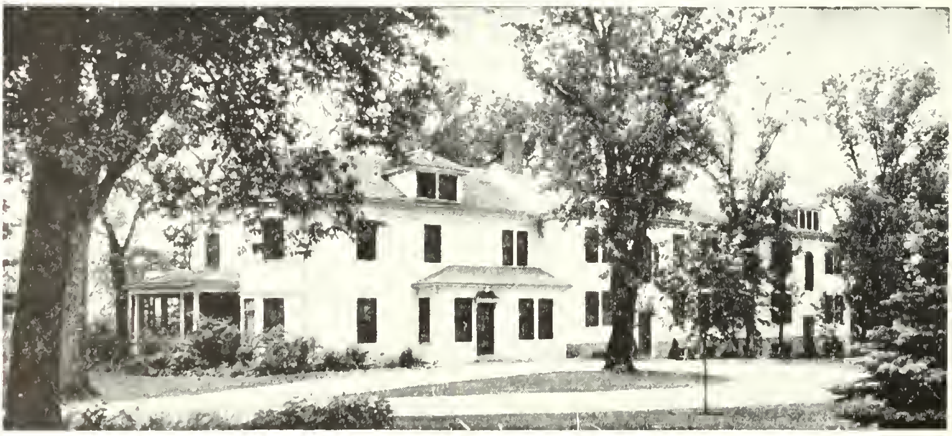
The Pathogenesis of Leprosy: Ciba Foundation Study Group No. 15 edited by G. E. W. WOLSTENHOLME and MAEVE O'CONNOR, 101 pp., ill., Little, Brown & Co., Boston, 1963. $2.95

Cell-Bound Antibodies: Conference of the National Academy of Sciences–National Research Council

Held May 10, 1963, edited by BERNARD AMOS and HILARY KOPROWSKI, 134 pp., ill., Wistar Institute Press, Philadelphia, 1963. $4

A Short Practice of Surgery by HAMILTON BAILEY and MCNEILL LOVE, 12th ed., 1,330 pp., ill., J. B. Lippincott Co., Philadelphia, 1962. $18

Bedside Diagnosis by CHARLES SEWARD, 499 pp., Williams & Wilkins, Baltimore, 1962. $7



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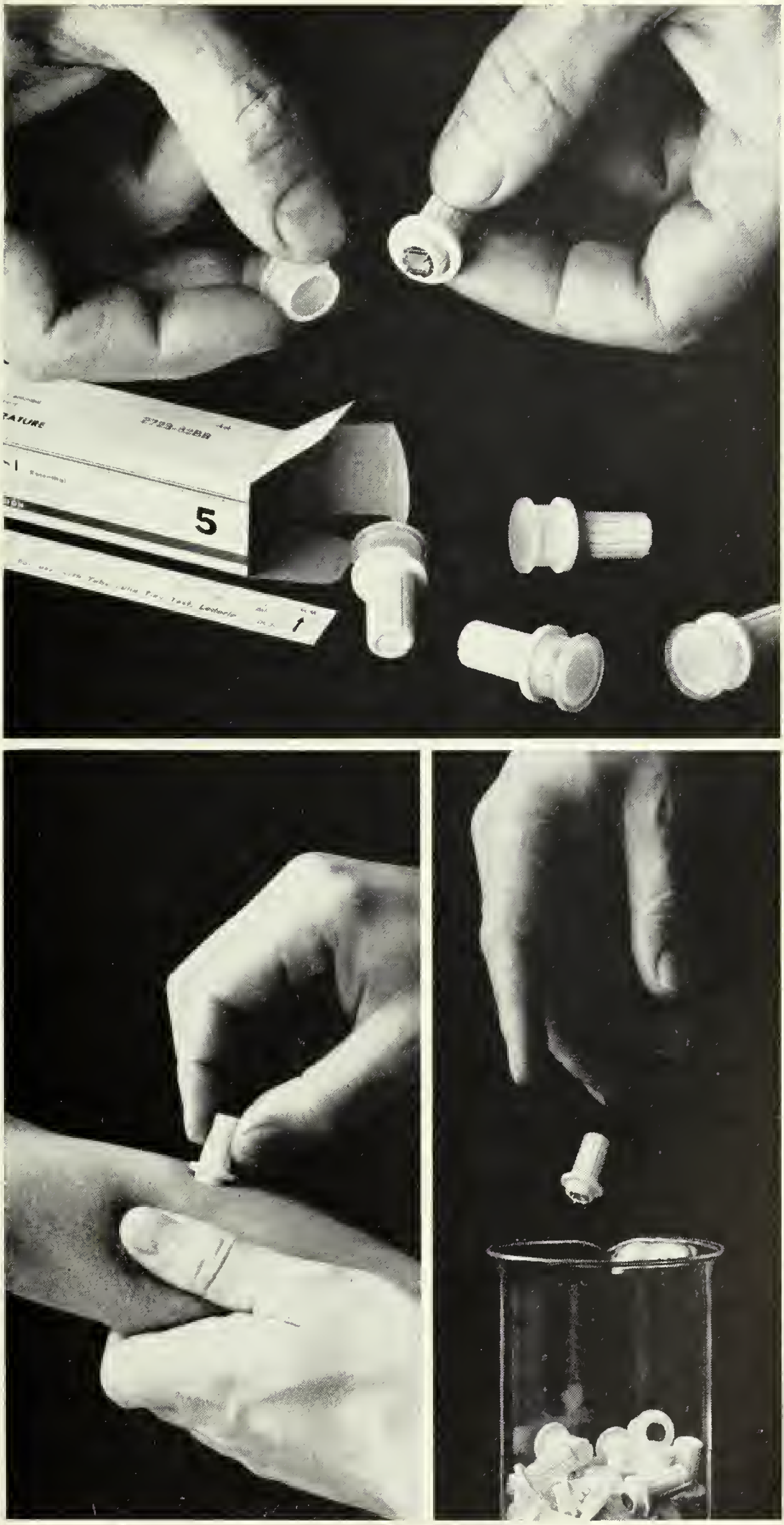

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RESIDENCIES AVAILABLE. January 1 and July 1, 1965. Internal Medicine 3 years, Surgery 4 years, General Practice 2 years. American physicians preferred. Cooperative medical center of five private hospitals (1300 beds), large outpatient center (50,000 annual visits), and research laboratory. Total complement of 40 interns, 30 residents, and 7 Directors of Medical Education. Stipends and benefits are equivalent to 6400-8200. Write D. W. R. Miller, Medical Director, Saint Paul Medical Center, 279 Rice Street, Saint Paul, Minnesota 55102.

WANTED: General practitioner or internist to join group of five doctors in Breckenridge, Minnesota, 5000 population. Community from which practice is drawn approximates 15,000. Age—under 35 years. Salary open with opportunity for full partnership later. Excellent 125 bed hospital. New air-conditioned building. Golfing, hunting, fishing available in area. Position open July 1, 1964. Write: Breckenridge Clinic; Breckenridge, Minnesota.

WANTED: Nurse Anesthetist. Small hospital with 2 general practitioners. Light surgical schedule. Also opportunity to free lance in a town 45 miles from Forsyth. Salary open. Reply Rosebud Community Hospital, Forsyth, Montana.

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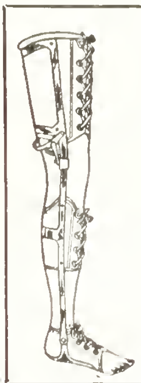

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News Briefs . . .

North Dakota

DR. G. ALFRED DODDS of Fargo was elected president of the North Dakota State Medical Association for 1964-65. Other doctors elected are: Joseph D. Craven, Williston, president-elect; Glenn W. Toomey, Devils Lake, first vice-president; Verrill J. Fischer, Minot, second vice-president; William M. Buckingham, Bismarck, secretary; Richard D. Nierling, Jamestown, treasurer; Lee A. Christopherson, Fargo, House of Delegates speaker; Clifford H. Peters, Bismarck, House vice-speaker; Thomas E. Pederson, Jamestown, delegate to the American Medical Association; and Robert C. Painter, Grand Forks, alternate AMA delegate.

° ° ° °

DR. ANGEL R. CUADRADO, for six years medical director and superintendent of the North Dakota State Tuberculosis Sanatorium at San Haven, has accepted a staff position with a tuberculosis sanatorium at Oakdale, Iowa. During Dr. Cuadrado's administration, mentally retarded patients from the State School at Grafton were transferred to San Haven, putting available space to use in a dual-purpose institution. Since 1959, 144 nonambulatory, mentally retarded patients have been accepted at the sanatorium, with extensive precautions directed by Dr. Cuadrado to prevent spread of tuberculosis. A native of Cuba, he became a United States citizen in 1953. He studied medicine at the University of Paris, France, and was a medical officer in the U. S. Army from 1951-53.

° ° ° °

DR. ROBERT C. MC KONE, a native of Pembina, has been promoted to assistant professor of pediatrics at the Bowman Gray School of Medicine, Winston-Salem, N. C. A graduate of the University of North Dakota, he received his M.D. degree at Bowman Gray and has taught pediatrics there since 1961.

° ° ° °

DR. AMEDEE P. ISABEY, a practitioner in Rolla since 1962, has joined the St. Boniface Clinic in his native Manitoba. He has been associated with the Rolla Clinic and the Rolla Community Hospital. Dr. Isabey recevied his M.D. degree at the University of Manitoba in Fort Garry and interned at St. Boniface General Hospital before beginning practice in Rolla.

° ° ° °

WORK HAS BEGUN on a new building for the Dickinson Clinic. The 70 × 128-ft. structure is to be occupied by January 1965. Attending ground-breaking ceremonies were Drs. Andrew C. Sawchuk, Amos R. Gilsdorf, Ralph J. Dukart, Robert F. Gilliland, and Hans E. Guloien.

Minnesota

DR. EDWARD H. RYNEARSON was elected president of the Mayo Foundation 441-member chapter of the Society of Sigma Xi, succeeding Dr. Gershom J. Thompson. Dr. Deward O. Ferris was elected vice-president and Dr. Alfred G. Karlson, secretary-treasurer. Eleven staff members of the Mayo Clinic and 12 fellows of the Mayo Foundation were elected to membership: Drs. Robert A. Devloo, Robert R. Jones, Raul E. Espinosa, Stafford W. Gedge, Pasquale J. Palumbo, Murray N. Silverstein, James V. Ross, Jr., George D. Malkasian, James R. Stewart, Donald W. Klass, A. Howard Sather, James B. Bassingthwaighte, Morton D. Blaufox, Panayotis P. Kelalis, Richard E. Larson, Gertrude M. Tyee, Roger L. von Heimburg, Warren F. Brown, Teodoro Herskovic, Brian J. King, Walter D. Maddox, James E. Wenzl, and Redentor J. G. Pagtalunan. Dr. Francis A. J. Tyee, medical director of the Rochester State Hospital, also was elected.

* * * *

DR. DAVID M. LONG has received the first Minnesota Heart Association Established Investigator Award, a $45,000 grant to an outstanding young researcher. A member of Dr. C. Walton Lillehei's open heart surgical team at the University of Minnesota, he is well known for introducing the blood stabilizer, low-molecular weight dextran. Dr. Long was born in Pennsylvania and received his M.D. degree from Hahnemann Medical College in Philadelphia. He joined the Navy as chief of a research team at the Naval Medical Research Institute, Bethesda, Md. Dr. Ralph E. Smith, of Rochester, president of the Minnesota Heart Association, said Dr. Long is "remarkably qualified to benefit from the grant."

* * * *

AIR-MINDED DOCTORS are organizing a Minnesota chapter of the National Flying Physicians Association to handle emergencies in remote parts of the state. Spearheading the organization are Drs. Edwin J. Tanquist, Jr., Alexandria; Frank J. Bonello, St. Paul; Stanley F. Cepleeha, Redwood Falls; Henry M. Broker, St. Cloud; and John A. Watkins, Wells. Dr. Tanquist, acting chairman, said a proposed network of physician-pilots could move concentrated medical care and equipment to any disaster site in Minnesota within two hours.

* * * *

DR. ROBERT W. SCHULZ has been appointed city health officer in Fairmont, following resignation of Dr. Eugene J. Birkemeyer who moved to Ely. Dr. Schulz also is Martin County health officer.

* * * *

DR. EUGENE J. BIRKEMEYER, a 1961 graduate of the University of Minnesota Medical School, has joined Dr. Edward W. Ciriacy of Ely in general practice. Dr. Birkemeyer interned at Minneapolis General Hospital and practiced two years in Fairmont.

* * * *

DR. ALAN JOHNSON has joined the staff of the Windom Clinic after practicing in Windom since discharge as a Naval flight surgeon last December. He received his M.D. degree from the University of Minnesota in 1960 and interned at Ancker Hospital, St. Paul, before Navy service.

* * * *

DR. CHARLES G. SHEPPARD, who has practiced in Hutchinson since 1937, will join the medical staff of the state mental hospital, St. Peter, this fall. A 1935 graduate of

(Continued on page 20A)

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(Continued from page 19A)

the University of Minnesota Medical School, he interned at the Charles T. Miller Hospital in St. Paul and entered practice in Hutchinson where his father, Dr. Ernest Sheppard, and uncle, Dr. Fred Sheppard, were in practice. He has been active in professional organizations and currently is chairman of the scholarship committee of the Minnesota State Medical Association.

° ° ° °

TWO MINNESOTA DOCTORS, J. Arthur Myers, professor emeritus of medicine and public health at the University of Minnesota, and Carroll E. Palmer, formerly of Fairmont, have been honored by the National Tuberculosis Association. Dr. Myers received the Will Ross award and Dr. Palmer the Trudeau Medal for outstanding contributions in tuberculosis research. Dr. Palmer now is director of tuberculosis research with the United States Public Health Service. Dr. Myers was cited for having demonstrated the value of the tuberculin test and chest x-ray and disproving the once common theory that nearly everyone has tuberculosis infection by adulthood.

° ° ° °

DRS. JOSE AND ALAYNE ARUGUETE, a husband and wife medical team, will locate in Sandstone this September. Dr. Jose is completing internship at Cook County Hospital, Chicago, and his wife is in pediatric residency at Michael Reese Hospital, Chicago.

° ° ° °

DR. HERBERT A. HARTFIEL, former Montevideo and Sherburn physician, has opened private practice in Burnsville where he is assisting in planning a new hospital. He was hospital surgeon at the Veterans Psychiatric Hospital, Waco, Texas. A native of Boyd, Dr. Hartfiel studied at the Louisville School of Medicine with postgraduate study at the University of Vienna, Austria. His experience includes clinical research directorships with the Mennen Company, Newark, N.J., and Eaton Laboratories, Inc., New York City, plus university physician assignments at the University of Idaho and New Mexico University hospitals.

° ° ° °

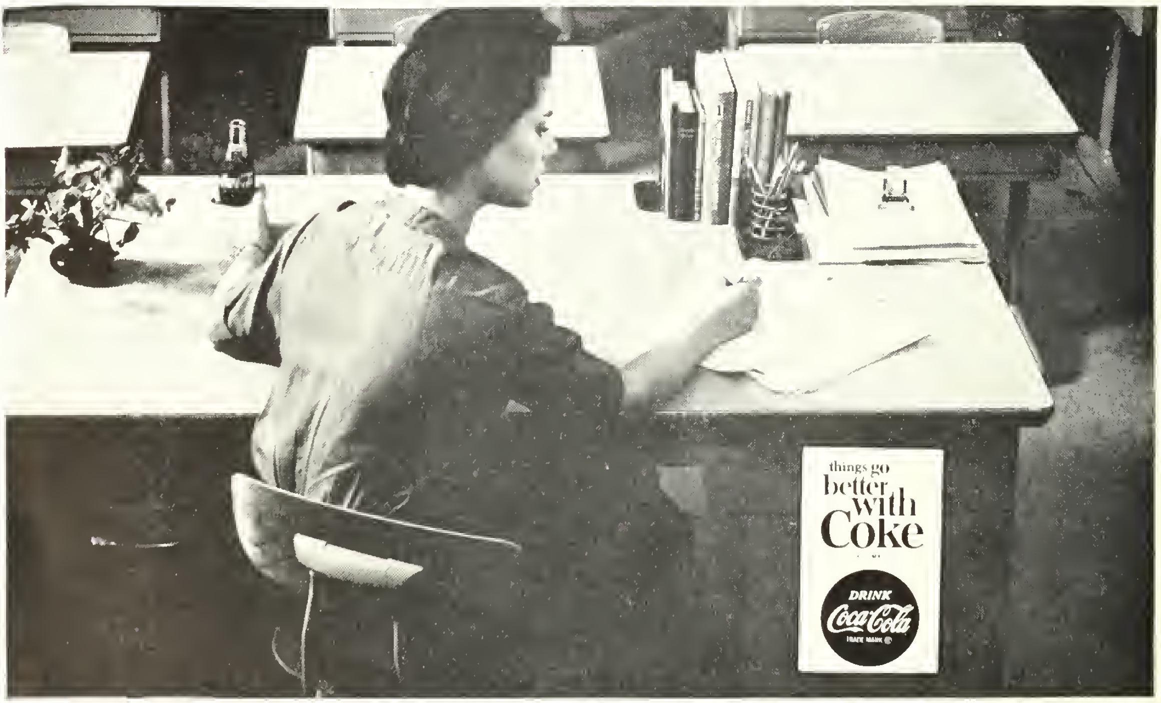
DR. FRANK B. RICE has joined Dr. Paul J. Keith of the Keith Clinic in Milaca. Dr. Rice received his M.D. degree from the University of Minnesota. He practiced for twelve years in Minneapolis and completed two years' practice in Las Vegas, Nev., before moving to Milaca.

° ° ° °

DR. HARTVIG B. ROHOLT has joined the Bemidji Clinic staff. A 1946 graduate of the University of Minnesota Medical School, he interned at Milwaukee County Hospital and practiced at Fosston, Minn., and Rye, N.Y. Dr. Roholt completed an internal medicine residency at St. Luke's Hospital, New York City, concentrating on research in metabolism and gastrointestinal diseases.

South Dakota

THREE DOCTORS were honored at the South Dakota State Medical Association convention. Dr. Robert H. Hayes of Winner received the South Dakota National Guard's Minute-Man award, Dr. John C. Hagin of Miller received the Community Service award, and Dr. Magni Davidson of Brookings received the Past President's award.



Whether you're a teacher correcting exams. A student cramming for them. A housewife cleaning up after the kids. Or a businessman working late at night. Whoever you are, things go better when you pause and refresh with ice-cold Coca-Cola.

DR. JAMES P. STEELE of Yankton has been elected president of the South Dakota State Medical Association. Also in new posts are Drs. Paul H. Hohm, Huron, president-elect; Paul P. Brogdon, Jr., Mitchell, vice-president; and Arthur P. Reding, Marion, delegate to the American Medical Association.

Deaths . . .

DR. THOMAS A. PEPPARD, 76, died May 25. He received his M.D. degree from the University of Minnesota in 1912 and interned at Ancker Hospital, St. Paul. Dr. Peppard practiced in Devils Lake, N.D., two years before his long Minneapolis career in internal medicine. He joined the Asbury Methodist Hospital staff in 1914. He served continuously as a staff member after the hospital's reorganization in 1924. He was named "Doctor of the Year" in 1955 by the Hennepin County Medical Society. Dr. Peppard was past president of the Minnesota Pathological Society and the Minnesota and Minneapolis Academies of Medicine, a charter member of the Minnesota Society of Internal Medicine, and a diplomate of the American Board of Internal Medicine. A memorial fund in his name, probably earmarked for medical research, has been established at Methodist Hospital in St. Louis Park, Minn.

* * * *

DR. HAROLD F. FLANAGAN, St. Paul pediatrician and president-elect of the American Academy of Pediatrics, died May 30 in Austin, Minn. He had given the high school commencement address the previous evening at nearby Wykoff, from which he had received his high school diploma. Dr. Flanagan attended the College of St. Thomas and was in the 1927 graduating class at the University of Minnesota Medical School. Following a fellowship in pediatrics, he began his St. Paul practice in 1931. An associate clinical professor at Minnesota, he also had been chief of staff at Children's, St. Joseph's, and Ancker hospitals in St. Paul. Dr. Flanagan was past president of the Ramsey County Medical Society and the Minnesota Academy of Medicine.

* * * *

DR. HENRY W. GOEHRS, a practicing physician for fifty-nine years, died May 15 at age 87. Born in Pennsylvania, he received his M.D. from the University of Minnesota in 1905, practiced in Minneapolis, Wheaton, Minn., and Melrose, Minn., and moved to St. Cloud, Minn., in 1918 where he was active until his death. He was St. Cloud city health officer for ten years and a past president of the Great Northern Surgeons Association. He had been a Great Northern surgeon since 1910 and was a fellow of the American College of Surgeons.

* * * *

DR. ALEXANDER J. ROSS, 58, of Minneapolis died May 22 of auto accident injuries. A graduate of Boston College, he received his M.D. from the University of Minnesota in 1934 and became associated with St. Barnabas and St. Mary's hospitals in Minneapolis. He was secretary-treasurer of the Hennepin County Medical Association and secretary of the American Academy of General Practice.

* * * *

DR. ALEXANDER F. HARTER, 82-year-old Eveleth, Minn., physician, died May 25. Before retirement, Dr. Harter had practiced in Rhinelander, Wis., where he was chief of staff at St. Mary's Hospital.

(Continued on page 22A)

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DEATHS

(Continued from page 21A)

DR. RAYMOND M. SULLIVAN, a native of Minneapolis, died June 5 at age 68. He had practiced in Minneapolis for forty-three years. Dr. Sullivan attended the College of St. Thomas and received his M.D. degree from the University of Minnesota in 1920. He was a staff member for many years at St. Mary's Hospital in Minneapolis.

* * * *

DR. ROLLA I. STEWART, 71, died June 8. Born in Hannibal, Mo., he had practiced in the Minneapolis area for thirty-three years. He was a member of the Hennepin County Medical Society, the Minnesota and American Medical Associations, and the American College of Surgeons.

* * * *

DR. MOSES L. STRATHERN, 89, a Gilbert, Minn., general practitioner for many years, died May 25. The pioneer iron-range doctor received his M.D. degree from the University of Minnesota in 1907. As an undergraduate, he captained the university football team in 1904 and was mentioned for All-American honors. Dr. Strathern interned at St. Luke's Hospital of St. Paul, took postgraduate work in Germany and England, and began practice in Coleraine, Minn., in 1909. In 1911, he moved to Gilbert where he practiced until retirement in 1955.

* * * *

DR. WILLIAM C. MACCARTY, an early and leading surgical pathologist at the Mayo Clinic, died May 17 at age 83. The outstanding investigator established the technique of microscopic examination of living tissues; contributed early work on the thyroid gland, breast cancer, and giant-cell tumors; and was the first at Mayo Clinic to differentiate regeneration from malignant cells. Dr. MacCarty was born in Louisville, Ky., received his M.D. degree from Johns Hopkins University in 1904, and took further study at the Queen Augusta Hospital in Berlin, Germany. He was head of a section of surgical pathology at Mayo Clinic from 1907-46 and was senior consultant until retirement in 1948. He was a founder and past president of the American Society of Clinical Pathology, trustee of the International College of Surgeons, fellow of the American College of Physicians, and member of many other professional affiliations.

* * * *

DR. JACOB VAN HOUTEN, 87, of Valley City, N.D., died May 21. Following graduation from Northwestern University Medical School, Chicago, in 1905, the Wisconsin-born doctor began a lifetime practice in Valley City. A man of varied interests, Dr. Van Houten was one of the founders of a state bridge club, a member of the Holstein Breeders Association since 1917, and a member of the Barnes County Wildlife Federation. He was Barnes County health officer from 1931-59.

* * * *

DR. LOWELL M. CAMPBELL, 78, Edina, Minn., health officer for twenty-five years, died June 1. He had been a staff member of Northwestern Hospital, Minneapolis, for many years. Dr. Campbell was a member of the Hennepin County Medical Society, Minnesota State Medical Association, and the American Medical Association.

* * * *

DR. WILLIAM E. HALL of St. Paul died May 31 at age 52. A native of England, he graduated from Macalester College in St. Paul and received his M.D. degree from Marquette University, Milwaukee. He practiced in Maple Lake, Minn., from 1946-59 when he established a St. Paul practice. Dr. Hall was a member of the American Academy of General Practice.

COMING *in* October

Articles and features to be found in the next issue of THE JOURNAL-LANCET

One of the best received papers at the North Dakota State Medical Association annual meeting in Minot last spring was the résumé by Dr. Carl E. Johnson, Rochester, of the Mayo Clinic experience in management of transverse fetal presentation. In an illustrated paper entitled "Abnormal Fetal Presentations" Dr. Johnson rounds out the matter by detailing the management of brow and face presentations as well.

Dr. John S. Lundy, Seattle, Washington, editor of THE JOURNAL-LANCET quarterly "Section on Pain and Distress," has brought together three papers of unusual interest and significance. In this section Dr. Henry Williams, Minneapolis, presents "A New Hypothesis of Vascular Dysfunction Linking Certain Pain Syndromes of the Head and Neck with Ménière's Disease;" Dr. Robert Ryan, St. Louis, discusses "Tension Headache;" and Robert J. Gores, D.D.S., Rochester, reports on "Pain Due to Long Hamular Process in the Edentulous Patient: Report of Two Cases."

Other papers scheduled to appear are:

- **The College Health Doctor,** by John H. Arnett, M.D., Drexel Institute of Technology, Philadelphia.

- **Complete Interruption of the Aortic Arch: Report of a Case,** by Howard E. Reidbord, M.D., Cleveland Clinic Foundation.

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Idiopathic Hyperglobulinemic Purpura

JOHN L. MAGNESS, M.D., and FRANK M. MELTON, M.D.
Fargo

THE ASSOCIATION of purpuric skin lesions and abnormalities of serum protein patterns has been described since 1943. At that time Waldenström[1] described a clinical syndrome which he called benign hyperglobulinemic purpura. The salient features of the syndrome were chronic, relapsing, purpuric eruptions, usually involving the legs, primarily in young women, associated with a persistent increase in serum globulin levels, usually the gamma globulin, and an elevated total serum protein and sedimentation rate. Since that time additions to the literature have been reported under the heading of either benign hyperglobulinemic purpura or idiopathic hyperglobulinemic purpura. The nomenclature has been further confused by the addition of the entity of Waldenström's macroglobulinemia[2] which is associated with a bleeding state, usually occurring in older people, primarily males, and in which osteoporosis, anemia, lymphadenopathy, and an elevated macroglobulin level are important clinical and laboratory features. Classification of diseases in which purpuric manifestations are associated with changes in serum proteins has been divided into 3 groups by Hambrick.[3] These are purpura hyperglobulinemica, purpura macroglobulinemica, and purpura cryoglobulinemica.[4] Purpura hyperglobulinemica can be either primary or secondary; the combination of elevated serum gamma globulin levels and purpura has been reported in multiple myeloma, thrombocytopenic disorders, and other diseases.[5-8] The diagnosis of primary, benign, or idiopathic hyperglobulinemic purpura is based on the characteristic clinical syndrome in the absence of any other disease entity. The present patient illustrates these criteria.

REPORT OF A CASE

The patient was a 21-year-old white female who was first seen on July 9, 1962, because of a recurrent "rash" of reddish spots on the legs. The patient stated that she had first noticed the occurrence of the red spots five years before the present visit and that they recurred frequently since. At the outset, she had noticed these over the lower leg and ankle in episodes of once or twice monthly, but in recent years she would have new spots several times weekly. The patient stated that warm weather, prolonged standing, fatigue, and the premenstrual period seemed to increase the occurrence of the spots. Frequently the onset of new spots would be accompanied by aching and stinging in the lower leg and

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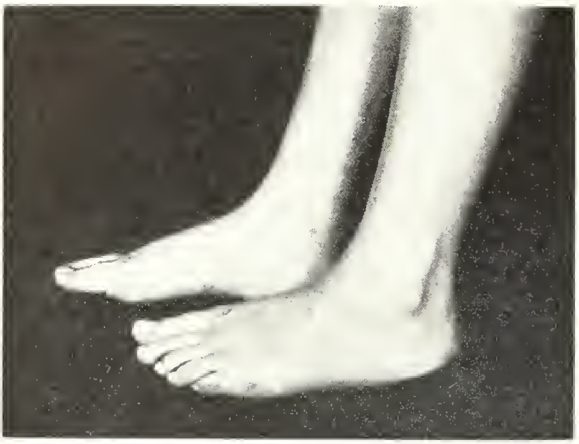

Skin of lower extremities demonstrating purpuric and petechial spots

ankle. On one occasion, the wearing of tight stockings seemed to cause the spots to occur higher on the legs. There had been no "breaking out" anywhere else.

Past history revealed that the patient had had an appendectomy and no other operations or serious illnesses. There had been a reaction to sulfadiazine in 1958, characterized by nausea and vomiting but without any skin manifestations. This was after the onset of the present illness. The patient had been treated for the present illness with rutin and ascorbic acid orally and vitamin B_{12} parenterally without improvement. She had also received 6 treatments with superficial x-ray therapy of 40 kv. with a 0.25 mm. aluminum filter for one minute. Two years before this visit, she had had cystitis which cleared on tetracycline therapy.

Physical examination revealed a well-developed, well-nourished, white female of stated age. The skin of the lower extremities over the medial and lateral shin, the dorsum of the feet, and both ankles demonstrated brownish macules, 1 to 2 mm., with a few red, petechial spots, 1 to 4 mm. (see figure). The involved areas did not blanch on pressure. The blood pressure was 110/70, pulse 72, and temperature 98.6° F. There was no abnormality of the lymph nodes, liver, or spleen. The Rumpel-Leede phenomenon was positive.

Laboratory examination showed an acid urine with a specific gravity of 1.022, no albumin, no sugar, and an occasional white blood cell per high-power field. The hemoglobin was 11.2 gm. per 100 ml. with a hematocrit of 37. The white cell count was 5,100 with 65% segmented neutrophils and 35% lymphocytes. The sedimentation rate was 51 mm. per hour (uncorrected Wintrobe method). Bleeding, clotting, and prothrombin times were normal. The platelet count was 184,000 per cubic millimeter, and clot retraction was normal. The sulfobromophthalein was 2.5% after one hour. The lupus erythematosus cell preparation and the serology were negative. The chest x-ray was normal. The blood urea nitrogen was 15 mg. percent. The latex particle test was negative.

Analyses of the serum protein revealed consistent abnormalities. The total serum protein was 7.9 gm. percent with albumin 3.6 gm. percent and globulin 4.3 gm. percent. Serum electrophoresis gave the following values: albumin 50.9 percent (4.3 gm. percent normal); alpha_1 globulins 2.4% (0.2 gm. percent normal); alpha_2 globulins 8.3% (0.7 gm. percent normal); beta globulins 10.6% (0.9 gm. percent normal); and gamma globulins 27.8%, 2.3 gm. percent (elevated). The gamma globulin band was broad-based. Cryoglobulins were absent. Ultracentrifugation disclosed a marked increase in the S7 class at 2.6 gm. per 100 ml. (normal 1.4 gm. per 100 ml.); there were 0.267 gm. per 100 ml. in the S10 class and 0.433 gm. per 100 ml. in the S19 class (normal 0.272 gm. per 100 ml.).

Skin biopsy of the involved area of skin over the right lateral ankle was reported as showing skin with spotty mononuclear cellular infiltration and perivascular cuffing of mononuclear cells. There was no acute inflammatory response.

The patient was given a course of therapy with antihistamines to no avail. A short course of prednisone therapy also failed to influence the development of new petechial spots.

DISCUSSION

This patient demonstrates the characteristic features of the syndrome of idiopathic or benign hyperglobulinemic purpura: (1) petechial skin lesions, usually occurring in crops on the lower extremities and often with residual brownish pigmentation, (2) elevated gamma globulin without significant change in macroglobulins or cryoglobulins, and (3) a benign period lasting six years. Other features of the syndrome include the age and sex of the patient, the elevated sedimentation rate and mild normocytic anemia, the positive Rumpel-Leede phenomenon, and perivascular mononuclear cuffing on skin biopsy.

The relationship between the essential features of the syndrome, namely the purpura and the hyperglobulinemia, is not clear. Among the possible explanations are increased blood viscosity,[9] anti-intima antibodies,[10] and infiltration of the vessel wall with mononuclear cells. It would appear from the nature of the skin lesion, more particularly from its location, aggravation by any measure producing venous stasis in the lower extremities (standing, tight garments, pregnancy, or heat), and the positive Rumpel-Leede phenomenon, that alteration of the permeability and continuity of small vessels is related in part to venous stasis.

The alterations of serum proteins, while necessary for the diagnosis of this syndrome, certainly are not specific. Hypergammaglobulinemia can be found in chronic liver disease, sarcoidosis, multiple myeloma, lupus erythematosus, and other diseases.[11,12] The alteration of serum protein may not be limited to just gamma globulin. Laurin[5] reported a case of purpura hyperglobulinemica with values felt to represent increased macroglobulin levels. The level of macroglobulins in this case was distinctly above the standard normals. However, they were not in the range seen in Waldenström's macroglobulinemia; the S10 class also is somewhat elevated here, and these values would seem to indicate a diffuse change in globulin synthesis. This change has been described in rheumatoid arthritis.

It has been suggested in the literature that the term purpura hyperglobulinemica serves no useful purpose and that the purpura and the hyperglobulinemia are simply manifestations of a number of different conditions.[8] Certainly the secondary form of the disease bears this out. It has been suggested that all diseases with serum protein changes and hemorrhagic manifestations be lumped together under the heading dysglobulinemia hemorrhagica. It would seem that many of the patients described under idiopathic or benign purpura hyperglobulinemica have another disease, such as lupus erythematosus, with these 2 chief manifestations; however, it would also appear that there exists a group of patients with the features of a syndrome as described in whom no other disease can be demonstrated even over a prolonged period and who remain clinically well. This group of patients can remain under the heading of idiopathic or benign hyperglobulinemic purpura for purposes of classification. Evidence that hypergammaglobulinemia occurs in relatives of patients with lupus erythematosus also suggests that the underlying process may be a collagen vascular disease in mild form.[14,15] Rogers and Welch[6] and Wilson and Bolinger[16] felt that collagen vascular disease represented a possible etiology in patients with this syndrome.

There is no effective treatment known in this syndrome. Our patient failed to respond to either prednisone or antihistamines. Thioquanine was reported by Weiss and associates[17] to produce remission of the purpura without any change in the hyperglobulinemia in 2 patients. In the described syndrome of idiopathic or benign hyperglobulinemic purpura, it would not seem as though any therapy except that for symptomatic relief would be necessary.

SUMMARY

The syndrome of idiopathic or benign hyperglobulinemic purpura is discussed, and a case is presented with marked increase in S7 proteins and moderate increase in S10 and S19 proteins. This syndrome is likely a heterogeneous one, but the term idiopathic hyperglobulinemic purpura is felt to assist the clinician in classifying this syndrome in the absence of any other recognizable disease.

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The Association of Esophageal Hiatal Hernia with Ascites

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NUMEROUS CAUSES of esophageal hernia have been presented in the literature since Paré[1] described the first case in 1575. Morgagni[2] suggested in 1769 that even a slight weakness of the septum transversum might be dilated and that "the muscles of the abdomen urge the viscera of the belly upwards in expiration." In the same report, Morgagni associated the symptoms with this disorder for the first time.

It has long been recognized that umbilical and inguinal hernias commonly occur in patients with ascites, whether or not the ascites is the actual cause.[3–5] It seems reasonable to us to expect a higher incidence of hiatal hernia among patients with ascites than in the usual patient population, although we are not aware of any case reports or series indicating such a relationship. The purpose of our study, therefore, was to determine the frequency with which hiatal hernias appear in a group of patients with ascites of various causes and to review the pertinent literature on the cause of esophageal hiatal hernia.

ESOPHAGEAL HIATAL HERNIA

Incidence. The incidence of hiatal hernia in the general population varies with the year in which the study was made and the methods employed in reaching a diagnosis. From 1921, when it was first diagnosed roentgenologically, the hiatal hernia has been diagnosed with gradually increasing frequency. In 1933, Harrington[6] pointed out that 5 times more cases had been recognized in the preceding eight years than in the twenty-four years before that. The diagnosis was made with increasing frequency in most localities until 1951, at which time a more standardized technique of diagnosis was established.[7] Most investigators have found a minimal prevalence rate of 1.3 to 5% in the general population.[8–10] In 1954, Palmer[11] stressed the need for multiple diagnostic aids. Roentgenography alone would have failed to demonstrate the lesion in 40% of the 82 patients in his study; esophagoscopy or gastroscopy alone would have failed in 20 and 61%, respectively.

Types. Among the several varieties of esophageal hiatal hernia are the simple hiatal hernia, hernia due to a short esophagus, and paraesophageal and sliding hernias. In the last type, the esophagogastric junction may be temporarily displaced above the diaphragm. The following remarks chiefly refer to the sliding variety.

Etiologic and developmental factors. The diaphragm around the hiatus is largely formed embryologically by the right crus. The fascia covering the underside of the diaphragm becomes the phrenoesophageal ligament as it traverses the esophageal hiatus.[12] Carey and Hollinshead[13] pointed out that the basic defect in sliding hiatal hernia is redundancy of the peritoneal sac at the hiatus, stretching of the phrenoesophageal ligament, or distortion of the muscular collar at the esophageal hiatus. This phrenoesophageal ligament is readily discernible in the young but is much less obvious in the elderly.[14] All parts of the body are susceptible to atrophy with age, and the phrenoesophageal ligament is no exception. According to Harrington,[15] atrophy of this ligament may result in a relative insufficiency of the esophageal hiatus.

Age and sex factors both seem important in sliding hernias. In 1930, Ritvo[16] found that hiatal hernia occurs more often in the female and that in 80% of the patients the hernia appears after the age of 40. These findings were confirmed in later studies. In Marchand's study,[11] 40 of 65 pa-

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tients were female. Edmunds[7] also found a higher incidence in females, and 85% of sliding hernias in his series occurred in patients who were between the ages of 46 and 75 years.

Congenital and acquired factors are responsible for the development of hiatal hernia, but in most cases an acquired factor superimposed on a congenital weakness is the cause of the lesion. Acquired factors that increase intra-abdominal pressure are most often implicated: Of these, obesity is probably the most important.[14,17] Pregnancy is one physiological condition in which abdominal pressure is increased, and numerous articles have indicated a relationship between hiatal hernia and pregnancy. The hernia, often seen in roentgenograms made in the course of the third trimester, disappears in most patients after delivery.[18–20] It is more common in multiparous women in the older age group. Hiatal hernia is likewise said to follow physical exertion from lifting, vomiting, or tight corseting.[21] The high incidence in patients with bronchial asthma is said to result from the harmful effects of the acute intrathoracic and intra-abdominal changes in pressure on the esophageal hiatus.[22,23] Esophageal hiatal hernia also is more common in patients with kyphoscoliosis,[24] following pleurisy,[25] in hypothyroidism,[26] and following gastrectomy[27] than in other persons for reasons that are largely speculative. Some workers[28] have demonstrated a hernia following reflex shortening of the esophagus from vagal stimulation or distention of the gallbladder.

Diagnostic aspects. Epigastric pain or substernal burning aggravated by recumbency, stooping, or meals is the most common symptom. Belching, bloating, regurgitation, and dysphagia are other less common symptoms.[29,30] Symptoms attributable to hiatal hernia may be manifestations of other disease processes which are simultaneously present. Peptic ulcers occur with greater frequency in patients with hernias. Johnson[31] expressed the opinion that gastric retention so commonly seen with duodenal ulcers may lead to reflux esophagitis with esophageal spasm and resultant herniation. Other less frequently associated pathological conditions include diverticulosis, gallstones, and cirrhosis.[30,32] A readily demonstrable diaphragmatic hernia does not necessarily produce symptoms. Radloff and King[33] found that only 30% of 50 patients with hiatal hernia had symptoms attributable to that lesion, whereas Moersch[34] found that all except 19 of his 246 patients had symptoms referable to the hernia.

Distinguishing hiatal hernias from other lesions at the esophagogastric junction may prove a difficult task for the radiologist. Palmer[35] studied the esophagogastric junction extensively and concluded that the actual beginning of the stomach could be determined neither by the sudden increase in diameter of the esophagus nor by the angle of its entrance into the stomach. This anatomic confusion may lead to radiological dilemmas. There is often difficulty in differentiating a small hiatal hernia from a simple dilation of the lower part of the esophagus, the latter being clinically unimportant. Evans[36] advocated having the patient bend over and touch his toes during the fluoroscopic examination. If the cardiac sphincter remained competent after this maneuver, then he attached no significance to the small supradiaphragmatic pouch. Because of the intermittent nature of many esophageal hiatal hernias, the diagnosis should not be ruled out on the basis of only one roentgenogram if hernia is strongly suspected clinically. Roberts[37] could recognize only 85% of such lesions even after multiple positions and techniques.

Hiatal hernia, regardless of the size, often explains a patient's symptoms completely. Neglect of the lesion with prolonged gastric reflux can result in shortening and stricture of the esophagus,[38] a condition that may be irreparable. The presence of even the small and asymptomatic hiatal hernia has been cited as a definite anesthetic hazard[39] and a serious threat to life during surgery.[40]

PATIENTS STUDIED

Patients with ascites from multiple causes seen at the Mayo Clinic from 1955 through 1960 were considered for this study. From this group were selected only those patients who had had roentgenograms of the stomach made during their hospital stay. Most of the roentgenograms were obtained to demonstrate esophageal varices in the cirrhotic patients or to rule out carcinoma of the stomach. The report of an esophageal hiatal hernia was, therefore, an incidental finding in most instances.

The case records of 104 patients selected in this manner were reviewed, and additional factors which might contribute to esophageal hiatal hernias, such as age, sex, and obesity, were noted. Unfortunately, it was necessary to base the presence or absence of obesity on clinical criteria alone. Any attempt to determine obesity by standard weight charts would have been negated by the false weight resulting from the ascites. An attempt was made to determine the degree of ascites, both from clinical reports and consideration of the amount of fluid removed at paracentesis. The patient's symptoms during the present illness also were studied.

TABLE 1

ASSOCIATION OF HIATAL HERNIA WITH ASCITES

Extent of hernia	*With ascites*		*Control group*	
	No.	*%*	*No.*	*%*
< 2 in.	24	23.1	5	6.6
> 2 in.	8	7.7	0	
No hernia	72	69.2	70	93.4
Total	104	100.0	75	100.0

TABLE 2

SYMPTOMS OF HERNIA IN 24 PATIENTS WITH ASCITES AND HERNIA

Symptoms	*Ascites and hernia*		*Other disease also present**
	No.	*%*	
Epigastric pain or substernal burning			
Aggravated by recumbency	12	37.5	3
Aggravated by meals	4	12.5	0
Belching, bloating, regurgitation, occasional retention vomiting, or dysphagia	8	25.0	3

*Additional conditions which may have explained symptoms in part included duodenal deformity, varices, diffuse esophageal spasm, and gallstones.

The roentgenograms that had been reported to show hiatal hernias were reviewed by the radiologist in our group in order to achieve some uniformity of diagnostic criteria. The size of the hiatal hernia was classified as greater or less than 2 in. Other pathological changes, such as gallstones, varices, or duodenal deformity, were noted. The radiologist either confirmed or denied the diagnoses made previously by other investigators.

A group of 75 patients with irritable bowel syndromes on whom gastric roentgenograms were available was selected for control. The radiologist similarly reviewed these films in an effort to confirm or deny the presence of hiatal hernia.

RESULTS

Herniation of less than 2 in. of stomach had occurred in 24 of the 104 patients with ascites (23.1%), and a herniation of more than 2 in. was found in 8 patients (7.7%) (Table 1). A roentgenologically demonstrable hiatal hernia was therefore present in 30.8% of patients with ascites from any cause. In the control group of 75 patients with irritable bowel, only 5 (6.6%) had a hiatal hernia of less than 2 in., and none had a demonstrable hernia greater than 2 in.

Of the 32 patients with ascites and hiatal hernia, 16 (50%) had symptoms that are generally regarded as characteristic of esophageal hiatal hernia, namely, epigastric pain or substernal burning aggravated by recumbency or meals. Patients who had had symptoms before the development of ascites were not included in this 50%. An additional 25% of patients had symptoms which are often associated with hiatal hernias, namely, belching, bloating, regurgitation, retention vomiting, and dysphagia. Some patients had other lesions, such as duodenal deformity, varices, or gallstones, that might account for the symptoms; these are shown in table 2. Symptoms were attributable completely or in part to the hiatal hernia in 75% of patients who had this condition.

Age and sex. There were slightly more males with hiatal hernias (59.4%) than females in the group with ascites. The difference probably is not significant because more males were present in the total group of patients with ascites (Table 3).

TABLE 3

SEX, AGE, AND OBESITY OF PATIENTS

	Ascites					
	Total patients (104)		*Plus hernia (32 patients)*		*Control group (75 patients)*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Sex						
Males	64	61.5	19	59.4	35	16.7
Females	40	38.5	13	40.6	40	53.3
Age (years)						
30 or less	2	1.9	0		2	2.6
31 - 40	3	2.9	3	9.4	8	10.7
41 - 50	23	22.1	8	25.0	18	24.0
51 - 60	40	38.5	11	34.4	24	32.0
60+	36	34.6	10	31.2	23	30.7
Obesity						
Obese	17	16.3	4	12.5	18	24.0
Slightly obese	10	9.6	3	9.4	4	5.3
Not obese	77	74.1	25	78.1	53	70.7

Approximately two-thirds (65.6%) of patients with ascites and hiatal hernia were beyond 50 years of age. The ages of the entire group of ascitic patients are important in evaluating the influence of age, however, since 95.2% were beyond 40 years of age. The ages of patients in the control group, as indicated in table 3, were strikingly similar to those in the groups with ascites.

Obesity and ascites. Seven patients (21.9%) among those with ascites and hernia were considered obese or slightly obese by clinical observation. Of the control group, 29.3% were considered obese or slightly obese (Table 3). The presence of a hiatal hernia correlated well with ascites, as indicated, but not with the underlying disease process; the hernia appeared to correlate more highly with cirrhosis than with the other diseases only because more patients with cirrhosis were in the group (Table 4).

The hernia was not related to the degree of ascites. Likewise, the size of the hernia was not influenced by the degree of ascites, although the correct measurement of fluid in the peritoneal cavity in such cases is understandably difficult (Table 5).

DISCUSSION

The thesis that any condition that increases intra-abdominal pressure may lead to hiatal hernia seems a reasonable one; nevertheless, other factors besides an increase in pressure may be at fault. Hernias developed in 30.8% of our patients with ascites, whereas they occurred in only 6.6% of the control group. The disease process responsible for the ascites did not seem at fault nor did obesity seem significant since only 21.8% of patients with ascites and hiatal hernia were considered obese. Neither the amount of fluid present in the peritoneal cavity nor the sex of the patient had any bearing on the development of hernia. The age of the patient, however, seemed to be a significant factor because approximately two-thirds of the hernias occurred after the age of 50. Since atrophy of muscles and ligaments at the esophagogastric junction occurs with age, ascites superimposed on this condition of weakness may lead to herniation. A multiplicity of factors seem important; age and an underlying congenital weakness are only 2 such factors.

In our series, esophagoscopy was performed on only 2 patients with hiatal hernia and ascites, and in each the presence of the hernia seen roentgenologically was verified. Since a number of sliding hiatal hernias are missed on roentgenographic examination alone, our figure of 30.8% might have been increased if other diagnostic measures had been undertaken. Symptoms indicative of sliding hiatal hernia were present in 50% of the patients with ascites and hernia. These symptoms are usually aided considerably with medical therapy, as shown by Rex and associates[41] in 1961. In a ten-year follow-up study, this group found that 60% of sliding hiatal hernias were asymptomatic or improved with medical therapy after ten years. Two of our patients had hiatal hernias with symptoms before the development of ascites. It seems significant, however, that in these patients, both middle-aged obese females, the symptoms of hiatal hernia increased and became the presenting complaints subsequent to the development of their ascites.

TABLE 4

CAUSES OF ASCITES

	Ascites — Total No.	%	Plus hernia No.	%
Cirrhosis	66	63.4	20	62.5
Abdominal carcinomatosis	33	31.8	12	37.5
Congestive heart failure	3	2.9		
Undiagnosed	2	1.9		
Total	104	100.0	32	100.0

TABLE 5

ASSOCIATION OF DEGREE OF ASCITES WITH PRESENCE OF HERNIA

Ascitic fluid (ml.)	No hernia found No.	%	Hernia < 2 in.	> 2 in.
< 4,000	30	41.7	12	5
4,000-8,000	28	38.9	10	1
> 8,000	14	19.4	2	2
Total patients	72	100.0	24	8

The "vague epigastric complaints" of many patients with ascites may be manifestations of an underlying esophageal hiatal hernia. This condition should be sought in patients with ascites who have symptoms not readily explained by the ascites itself. Hiatal hernia occurring in association with ascites is amenable to simple medical therapy which will make the patient more comfortable while diuretics are given to remove the fluid responsible. These measures will give symptomatic relief from the hiatal hernia but probably will not alter the underlying disease that is causing the ascites.

SUMMARY

The case records of 104 patients with ascites of various causes on whom roentgenograms of the stomach were available were reviewed. The roentgenograms had been ordered in the search

for esophageal varices or carcinoma of the stomach. The report of hiatal hernia was, therefore, an incidental diagnosis.

Of patients with ascites, 30.8% had roentgenographic evidence of hiatal hernia, whereas only 6.6% of the control group of 75 patients of comparable age had hernia.

Symptoms attributable to the hernia were presented by 50% of the patients with ascites and hernia.

Age appeared to be an important predisposing factor, since two-thirds of the patients with ascites and hernia were beyond 50 years of age. Consideration is given to other factors which might be of pathogenic significance such as obesity, sex, and the cause of the ascites. In addition, the literature on the etiology of hiatal hernia is reviewed.

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Federal Health Services for Indians and Alaskan Natives

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EVER SINCE an Army doctor performed the first medical service for an American Indian in about 1802, the federal government has had a special relationship to the health problems of this group of citizens.

Congress first recognized the medical needs of Indians in 1819 when it made an appropriation of money ($10,000) for this purpose; however, the first government hospital primarily for medical care of the Indian was not constructed until 1880.

In spite of this long interest in providing health care to Indians, it is not surprising that their health is still about a generation behind that of other Americans, for their health problems are unique and stand out in contrast to those of other Americans. They are influenced by cultural and geographic isolation, a poor economic base, language and educational barriers, inadequate housing and transportation, and a limited understanding of modern medical practices.

Today more than 380,000 Indians, Eskimos, and Aleuts depend mainly upon the U.S. Public Health Service's Division of Indian Health for their medical care. These Americans are widely dispersed, living on some 250 reservations and communities, mostly in the midwestern and western United States, and in several hundred villages in Alaska.

The Indian population is a young one, for the Indian birth rate is nearly twice that of the rest of the nation. Nearly 60% are under 20 years of age, compared with 38% in the general population. However, the average age at death is only 43 years, contrasted with 69 for the nation as a whole. Among Alaskan natives, it is only 33 years.

UNIQUE PROBLEMS

The cultural and geographic isolation creates important barriers in providing Indians and Alaskan natives with effective health services.

Physical isolation and poverty mean that they must often travel long distances to the hospital or health center—by car or truck, by wagon, and even by skin boat or dogsled in Alaska. They also mean that these persons live in a physical environment of overcrowded housing, polluted water supplies which often have to be hauled from distant sources, and unsanitary waste facilities.

A surprising number of Indians do not speak English, and interpreters fill an important role in transmitting and interpreting vital health information. Many patients have little concept of or accurate knowledge concerning the causes of disease and the measures which afford protection. This lack of understanding is reinforced by cultural barriers that inhibit understanding of such modern medical concepts as the germ theory of illness; while Indians have beliefs about man and his environment and the ecological balance that exists between them, they are, for the most part, contrary to established theories.

CAUSES OF ILLNESS

Most illnesses and one-sixth of the deaths among Indians result from preventable communicable diseases, but one of the leading causes of death today among Indians is accidents, the rate of which is over 3 times that of the country as a whole; half are motor vehicle accidents. Although many accidents are due to inadequacies of home and the rigors of physical environment (no fire protection, for instance, or a bad fall at night—

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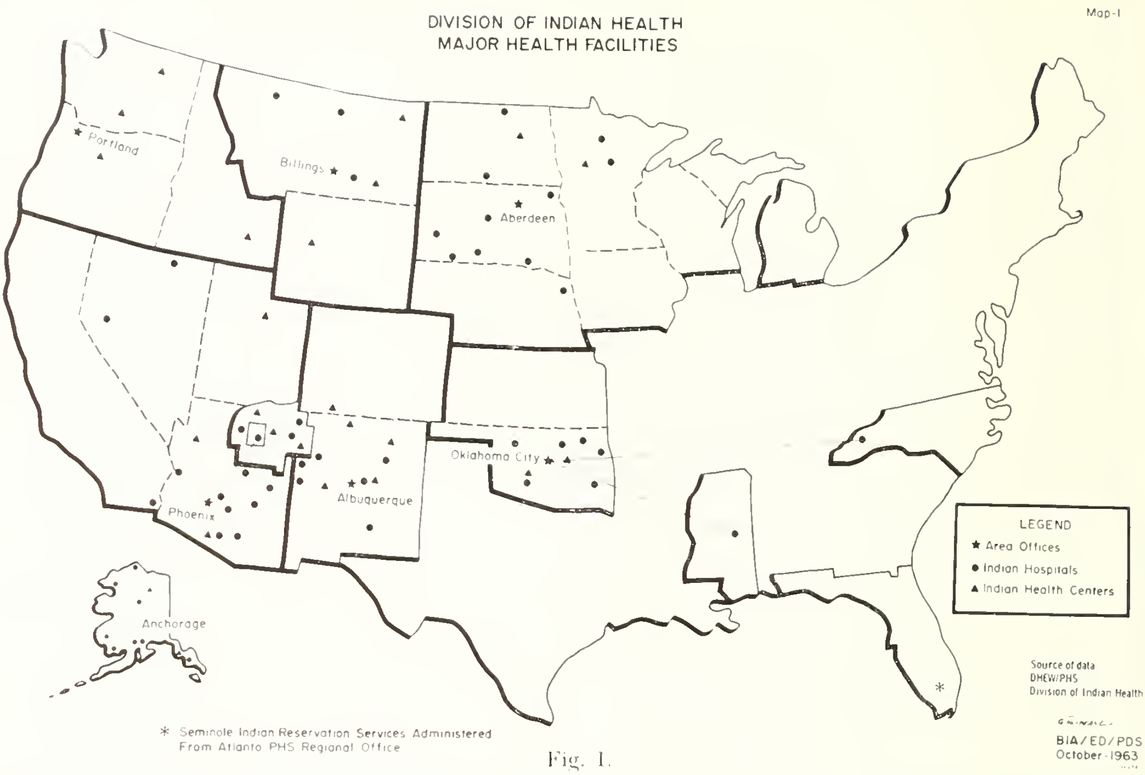

Fig. 1.

an injured Alaskan hunter can freeze to death before his companions find him), problems of mental health, alcoholism, and family medical-social problems, intensified for a people in transition from one culture to another, are important factors.

As Indians are experiencing an increase in the average age at death—it rose from 38 years in 1955 to the present 43—and as their life expectancy rises, degenerative conditions and illnesses associated with older persons are emerging. Heart disease now ranks second as a cause of death. Influenza and respiratory diseases are third and malignant neoplasms fourth.

HEALTH SERVICES AND FACILITIES

The Division of Indian Health conducts a program of comprehensive health services from prenatal care to geriatrics, including preventive and curative medicine, through an integrated system of 50 hospitals, 42 health centers, and hundreds of smaller field health stations (Fig. 1). There are 3,200 beds in Indian hospitals and 1,000 beds available in community hospitals under contract. The division also has contracts with 18 state and local health departments and with dentists and private physicians for services in such specialty fields as ophthalmology and neurosurgery. Dental clinics are operated in all of the division's hospitals and many of the larger health centers.

More than 300 physicians head health teams which include dentists, clinical and public health nurses, pharmacists, nutritionists and dietitians, medical record librarians, health educators, medical social workers, sanitarians and sanitary engineers, and supporting administrative personnel.

ENVIRONMENTAL HEALTH SERVICES

Gross and almost primitive environmental conditions and practices exist in many Indian homes and communities. The high morbidity and mortality rates from preventable diseases—gastroenteritis and dysentery have a combined incidence for Indians about 11 times that of the general population—and the sporadic epidemics that occur on Indian reservations and in Alaskan native villages indicate that improvement of the physical environment is imperative to the improvement of health. Since 1959 when the Congress voted authority for the Surgeon General in cooperation with Indian tribes to engage in construction of water supplies and sanitation facilities, 315 sanitation projects have been authorized, are under way, or are completed; these will provide a safe domestic water supply and sanitary waste disposal facilities for more than 20,000 Indians' and Alaskan natives' homes.

HEALTH GAINS

One of the most impressive health success stories among Indians is the tuberculosis story. A leading cause of death for decades, tuberculosis now

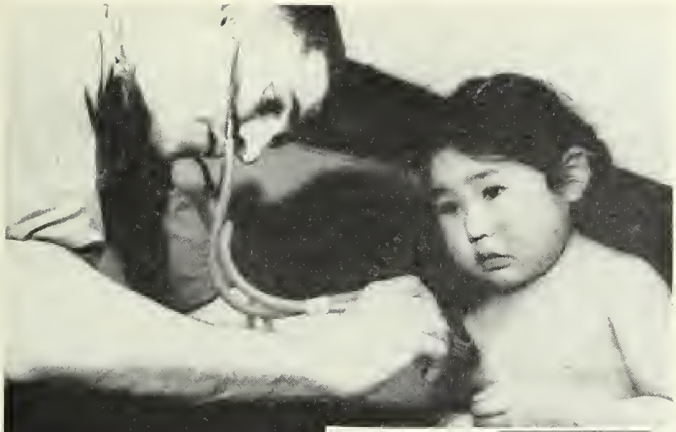

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Fig. 2. In the frozen North at U.S. Public Health Service Alaska Native Hospital at Kotzebue, Dr. Wade Ortel, medical officer in charge, examines small Eskimo child.

Fig. 3. At Bethel near Bering Sea, Dr. Frank J. Keefer, medical officer in charge, U.S. Public Health Service Alaska Native Hospital, gives preschool examination to young Eskimo girl.

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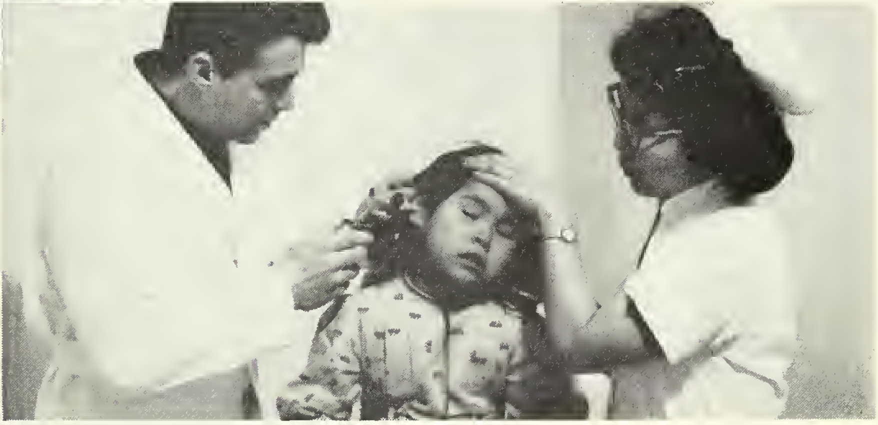

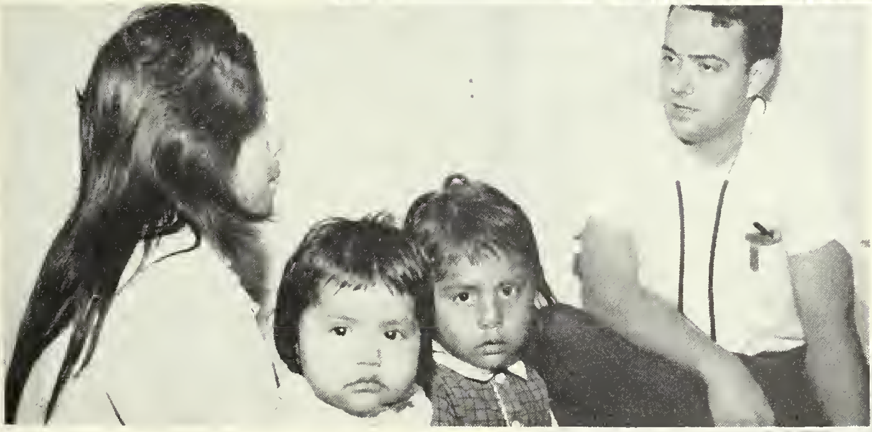

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Fig. 4. In Arizona desert near Mexican border, Dr. John M. Rusk, field medical officer with U.S. Public Health Service Division of Indian Health, explains measles immunization program to Pima Indian mother at health station on Gila River Reservation.

Fig. 5. The Public Health Service Division of Indian Health clinic on Gila River Reservation, Arizona

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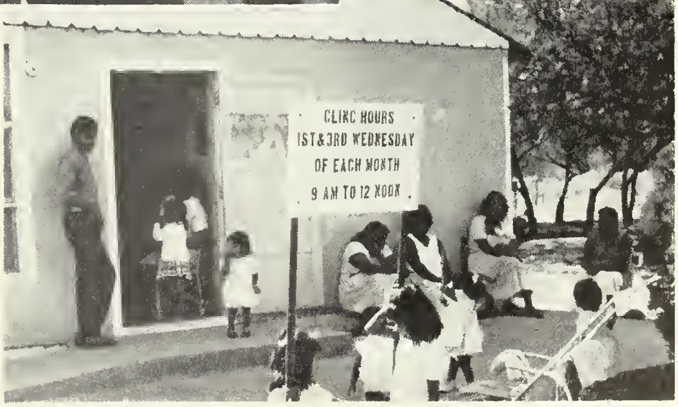

ranks ninth. New methods of treatment, use of chemotherapeutic drugs, and better case finding and follow-up have resulted in shorter hospital stays and treatment of more individuals as outpatients. Today the tuberculosis patient census in hospitals is 21% of the total, compared with 57% six years ago. Thus, as the number of hospitalized patients declines, more beds are available for general medical and surgical patients and for rehabilitative services.

A growing acceptance of modern health practices is shown by the increased use of facilities. Admissions to Public Health Service Indian hospitals and contract hospitals have increased 75% since 1955. In 1963 there were about 87,500 admissions, and 95% of Indian births took place in hospitals. More than 1,260,000 outpatient visits were recorded in 1963, an increase of 65% since 1955.

THE FUTURE

The measured progress in lowering the morbidity and mortality rates of most illnesses and the increased use of health facilities indicate that the program of the division to raise the health status of Indians and Alaskan natives is progressing on the right course.

A building program begun in 1955, when the Indian health service was transferred from the Bureau of Indian Affairs, Department of the Interior, has replaced many old hospitals and health centers and increased the number of health centers and health stations.

The professional staff is being strengthened through the use of consultants and specialists in areas of unusual and complicated medical problems and through a plan for the establishment of physician-residency programs in preventive medicine in Indian health hospitals. An increase in the training of Indians and Alaskan natives as health auxiliaries, that is, dental assistants, sanitarian aides, community workers, and practical nurses, serves to increase the involvement of the beneficiaries themselves in the program and further advances the opportunity of making the best possible use of the time of our doctors and nurses and other professional staff.

This growing involvement in the health program by tribal groups is shown by the establishment of increasing numbers of health committees and by the important role they play as a link between the program and the individual Indian. They are especially effective in helping in the control of tuberculosis, increasing attendance at maternal and child-care clinics, and organizing participation in immunization programs. No example of this cooperative interest is better shown than by the substantial contributions of labor, money, and materials that they make toward the construction of water and sanitary facilities and by the growing backlog of requests for such projects.

It is this increase in knowledge of what constitutes healthful living and the acceptance of modern medical practices that will bring about the day when American Indians, Eskimos, and Aleuts will enjoy the same level of health as other Americans and will be able to live in such a way as to maintain that level.

AORTOGRAMS can be successfully obtained by translumbar catheterization of the abdominal aorta if transfemoral catheterization would be hazardous. A combination of an 18-gauge needle and an 8-in. Teflon catheter is used, and the aorta is punctured above the renal arteries. The inner needle is removed, and a flexible and sharply curved guide wire is inserted with the tip upward; if resistance is met, the catheter is withdrawn enough to bring the tip away from the aortic wall. The guide wire is advanced about 10 cm., and the catheter is pushed over the wire. Plastic pressure tubing then is attached to the catheter, the correct intra-aortic position is verified fluoroscopically by a small injection of contrast medium, and 30 to 45 cc. of 75% diatrizoate solution are delivered from a 60-cc. syringe by a power injector in about two and one-half seconds at a pressure of 100 lb. per square inch. The catheter was advanced with a single aortic puncture in 85 patients. The curved guide was easily passed upward into the thoracic aorta in all but 1, and no aortic branches were entered.

KURT AMPLATZ, M.D., University of Minnesota Hospitals, Minneapolis. Radiology 81:927-931, 1963.

Treatment of Postpartum Pain with Fiorinal

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POSTPARTUM PAIN is a complaint frequently voiced by women during the three days immediately following delivery. The discomfort experienced by these patients is a composite of irritability and pain, the degree of which is apt to vary considerably, some patients likening it to that experienced during the course of labor. This is not as strange as it sounds, for the effects of the anesthesia and analgesia employed to minimize pain during labor and delivery are not sufficiently prolonged to protect the patient from the pain induced by laceration, stretching of tissues, or episiotomy. Paradoxically, complications such as headache or nausea, or both, may occur in the immediate postpartum period as aftereffects of the anesthesia and add to the discomfort of the patient.

A wide variety of agents for the relief of postpartum pain has been evaluated on this service over a period of sixteen years. These have included simple analgesics such as aspirin-caffeine-phenacetin combinations, as well as codeine or morphine and meperidine hydrochloride, given alone or supplemented by phenothiazines. As might be expected, the narcotics are effective pain relievers, but their usefulness is limited by such side effects as constipation, nausea, vomiting, and dizziness.

Ongoing trial of a number of other preparations led to the evaluation of a combination of isobutylallylbarbituric acid, 50 mg.; caffeine, 40 mg.; aspirin, 200 mg.; and phenacetin, 130 mg. per capsule (Fiorinal) which is reported here. Because of the drug's efficacy in relieving postpartum pain and discomfort, it was decided to test its capacity to prevent such complaints. Accordingly, 2 capsules of this preparation were given routinely three times daily for three days to 62 patients, 20 primiparas and 42 multiparas. All of these patients were attended by the same physician, and in each of them an episiotomy had been performed. Forty other patients who received aspirin and codeine served as a control series.

RESULTS

An excellent effect was obtained in 47 patients (76%) who met the following criteria: (1) were comfortable and did not require other medication, (2) were ambulatory, (3) accepted medication positively, and (4) experienced no side effects.

The result was rated good in 9 patients (14%) who received 2 capsules every four hours for relief. The remaining 6 patients (10%) responded inadequately and required narcotics.

CASE REPORTS

Representative case histories of patients in whom an excellent effect was obtained follow:

Case 1. Mrs. B. H., 30-year-old white woman, para IV, gravida IV, was a nurse by profession; she reported that her previous labors had been short (five to six hours) but quite painful. Discomfort for three days postpartum had been treated with 10 gr. aspirin and 1 gr. codeine sulfate every four hours. This proved effective, but constipation induced by the codeine sulfate aggravated her preexisting prolapsed hemorrhoids and added to her discomfort. In contrast, she remained quite comfortable for the three days following this delivery, during which time she received 6 test capsules daily.

Case 2. Mrs. D. D., 25-year-old white woman, para III, gravida III, had described the pain following her second delivery as more severe than any of her labors. At that time, she had responded with nausea and vomiting to her initial medication, which consisted of ½ gr. co-

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deine and 10 gr. aspirin. When 100 mg. meperidine hydrochloride was substituted, she became nauseated and dizzy and was unable to nurse her baby. No such problems were encountered following this pregnancy. She received 2 test capsules three times daily and remained free of pain and able to nurse her baby during this period.

Case 3. Mrs. A. K., 24-year-old white woman, para I, gravida I, received meperidine hydrochloride and propiomazine hydrochloride during labor, which was as uneventful as the subsequent delivery under cyclopropane and oxygen anesthesia. Postpartum, the patient complained of severe headache and discomfort from her episiotomy. Blood pressure was within normal limits, but her records revealed a long-standing history of tension headache. Two capsules of the test drug three times daily removed both complaints completely.

The patients in cases 1 and 2 are typical of 14 patients in this series who had been attended at previous deliveries and who provided a measure of control by which the test drug could be compared with other therapy. Records from previous deliveries revealed the use of narcotics as follows: 6, codeine by injection; 4, meperidine hydrochloride by injection; 2, morphine by injection; and 2, codeine orally.

Equal pain relief but better toleration was cited by 12 of these patients for the treatment with the test drug following this latest delivery. The records of 40 other patients who received 10 gr. aspirin with ½ to 1 gr. codeine revealed a comparable degree of pain relief. However, 9 (22.5%) of these patients reported side effects, which included nausea, constipation, excessive sedation, and dizziness, the latter confining 7 patients to their beds and preventing early ambulation.

DISCUSSION

The relief of postpartum pain and discomfort obtained with the isobutylallylbarbituric acid, caffeine, aspirin, and phenacetin capsules in this study parallels that reported earlier.[1,2] The formulation of this preparation is based on sound pharmacological principles, for Goodman and Gilman[3] note that a smoother and more efficient analgesic action may be obtained by prescribing a mixture of 2 or 3 analgesics. The addition of a barbiturate to such a mixture provides a sedative effect useful in blunting perception of pain. As has been evidenced in this evaluation, the presence of a barbiturate in the test drug's formulation obviously enhances the analgesic effect of the 3 agents, aspirin, caffeine, and phenacetin, which proved inadequate when used alone. This is not too surprising in light of the efficacy that the drug has demonstrated in the treatment of tension headache, for which it was originally developed. Extensive studies by Friedman[4] have shown that the drug yields the highest percentage of successful results in the symptomatic management of this syndrome, which is characterized by the pain of muscle contraction and nervous tension. In this respect, it resembles postpartum discomfort, which many patients manifest as a pain-tension-pain cycle. This suggests a place for a sedative-analgesic, the latter exerting its effect on the uterine contractions induced by oxytocics that may be used in the puerperium to control blood loss and promote involution.

While the efficacy of the drug was well demonstrated in these patients, the absence of side effects was equally noteworthy. This was very comforting to the patient and especially gratifying to the attending nurses, who describe postpartum discomfort as a vexing problem requiring more of their time and attention than any other routine service rendered to the patient. One practical advantage they found in using this drug was the avoidance of the registration required for the dispensing of narcotics. The nonnarcotic character of this drug also has been cited by Shook and Sharpe[2] as an important consideration in the management of the postpartum patient.

CONCLUSION

The evaluation reported here has demonstrated that a combination of isobutylallylbarbituric acid, caffeine, aspirin, and phenacetin (Fiorinal) is an effective preparation for the treatment or prevention of postpartum pain. The absence of side effects enhanced its value in removing postpartum discomfort and constituted a major advantage over the use of narcotics.

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Complications of Tonsillectomy-Adenoidectomy and Their Treatment

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Although their relative frequency, when compared with all other forms of surgery, has decreased in the past thirty years, tonsillectomy, adenoidectomy, and adenotonsillectomy are still some of the most often performed operations. In the past, these operations were done primarily by surgeons who had been trained in ear, nose, and throat work. However, in the United States today, the total number of adenoid-tonsil operations which are done by general practitioners, general surgeons, and others far exceeds those which are performed by otolaryngologists. In most instances, this is quite satisfactory to the patients, their communities, the hospitals, and the practicing physicians.

The serious complications of adenotonsillar operations which were described as being frequent in the past are still seen but to a lesser degree.[1–6] By virtue of improved anesthetic and surgical techniques to combat catastrophes such as hemorrhage, aspiration of foreign material, and cardiac arrest, fatalities and serious morbidity from these problems are now uncommon. Today the most frequent and troublesome problems resulting from tonsillectomy and adenoidectomy are far more insidious and often are unrecognized by the operating surgeon. These are more in the realm of technical defects in the operative procedures which result from incomplete comprehension of the anatomy or physiology of the areas involved and a lack of appreciation of the goals of this surgery. Unfortunately, through a false sense of security to which has been added a dose of overconfidence, there has arisen the philosophy, "All I do is tonsils, but that isn't really surgery."[7,8] This attitude has led many who have only borderline proficiency in throat surgery to attempt procedures for which they are less than prepared. The inauspicious results which often are achieved have decreased the respect of the public for the efficacy of throat surgery, added to the cost of treatment to the patients, and too often necessitated additional surgery to remedy that which was supposed to have been corrected at the time of the first operation.

In patients who have chronic otitis media in which reestablishment of the normal physiology of the eustachian tube is desired, injudicious manipulation in the nasopharynx has frequently resulted in only temporary or no relief of the ear problem. Lack of finesse during adenoid operations, resulting either in injury to the eustachian tubes or incomplete removal of the lymphoid tissue, frequently has been followed by middle ear problems in patients in whom such problems had not existed previously.

Too often, when discussing aural pathology with the patient or his parents preparatory to treatment of chronic or recurrent middle ear disease which had its origin in the nasopharynx, the otologist is placed in the position of an apologist for the incomplete adenoid surgery of another, explaining the failure of treatment on the basis of "recurrent adenoids."[9,10] In most instances, the remaining adenoid tissue more properly would be labeled "residual" rather than recurrent. This often necessitates further corrective surgery entailing "reoperative adenoidectomy" or "special adenoidectomy" to eliminate the offending lymphoid tissue which has been left in the throat.[11] It also is too often the experience of the consulting otologist to recommend adenoidectomy in the treatment of middle ear disease and then see this procedure done by another who may be only partially aware of the nature of the ear pathology. When treatment fails to benefit the patient, the otologist is blamed for the failure, and he again must explain it on the basis of "recurrent adenoids." He then has to recommend further therapy consisting of repetition of the previously performed but inadequate operation. For these reasons, many otologists feel that adenoid surgery, especially that which is performed for the relief of middle ear disease, should be

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done only by those who have had adequate training in the anatomy and physiology of the head and neck and in the surgical techniques for diseases in this area.

SPECIFIC COMPLICATIONS OF ADENOTONSILLECTOMY

Hemorrhage. In the past, hemorrhage was the most frequent and obvious complication of adenotonsillar operations; it still is a frequent complication. Concerning hemorrhage, Hays[12] reported in 1926: "The records in one of the large New York hospitals for one year, in which over fifteen hundred tonsil and adenoid operations were performed, showed three fatalities." Thomson[13] reported in 1927: "Statistics show that operations carried out competently in suitable subjects are very rarely followed by serious hemorrhage, although a confidential questionnaire sent 'round by H. W. Loeb to the profession in the United States elicited a record of sixty-two deaths from hemorrhage, nineteen from general sepsis, seven from meningitis and twenty from undetermined causes, making one hundred eight in all." It has been my experience, in the study of postoperative hemorrhage in 3 separate series of patients, to find the following results: (1) 1.6% of 132 adenotonsillar operations, (2) 1% of 380 operations, and (3) 0% of 145 operations. The overall incidence of significant bleeding in the 657 operations was 0.9%.[11,14–17] The most recent literature showed that postoperative hemorrhage is still the most commonly reported and discussed complication of this surgery.[18–30]

The control of adenotonsillectomy hemorrhage has 2 basic concepts: (1) prevention and (2) treatment of the bleeding when it occurs. Most bleeding comes at predictable times after operation. There are 2 types of hemorrhage: (1) that in the immediate postoperative period and (2) delayed hemorrhage. The immediate postoperative hemorrhage usually occurs within twenty-four hours after operation, the majority being within two hours of surgery. Most of the immediate hemorrhage results from inadequate ligation of bleeding points in the tonsillar fossa. In patients in whom local anesthesia with epinephrine is used, there may be a release of the vasoconstricting effect when the epinephrine wears off; this is followed by bleeding. The most important preventive of immediate postoperative bleeding is adequate ligation of all bleeders before the patient leaves surgery. A most valuable ritual for the surgeon is to stay with the patient in the operating room for a full five minutes at the conclusion of each operation after all apparent bleeding has subsided. The throat should be carefully inspected again after the pressure of the mouth gag has been released. If no bleeding is present at the end of this time, it is usually safe to return the patient to the postanesthesia department or to his own room.

The delayed bleeding usually results from slough of the membrane from the tonsil or adenoid fossa, exposing a granular, raw surface. It usually comes from small blood vessels but occasionally is from a sizable vessel if the clot therein becomes dislodged.

To circumvent postoperative hemorrhage, inquiry must be made preoperatively into any history of potential bleeding disorder. Included are familial bleeding tendency, liver disease, drug effect, or previous bleeding diathesis. If a blood dyscrasia or a potential bleeder is found from the history, postponement of the surgery or preparation for trouble during surgery, depending upon the urgency of the situation, would be the best approach to the problem.[31] Although in many places it is customary to obtain bleeding and clotting times prior to adenotonsillar surgery, the reliability of these laboratory procedures to predict potential bleeders is very questionable.[21,32] For this reason, it is the author's custom to rely more upon careful evaluation of the patient than upon laboratory data. It is usually unwise to perform adenotonsillar surgery within at least two weeks after the cessation of an upper respiratory infection because the vascularity caused by the infection takes at least this time to subside. It has been the author's experience that throat operations which are done late in the winter usually are attended by more operative and postoperative bleeding.[14,16] This is attributed to the increased, persistent vascularity which results from repeated respiratory infections. Less postoperative bleeding is seen in the late spring, summer, and early fall seasons.

Although the possibility exists that some form of an aberrant, large blood vessel, such as the carotid artery, may be within or close to the tonsil fossa, this is quite unlikely. A colleague[33] reported one instance during which what appeared to have been the carotid artery was observed in a tonsillar fossa. A tear in the vessel caused profuse bleeding, but this was controlled by digital pressure on the vessel. A sponge was sewed into the fossa, and the carotid artery was ligated. The patient made an uneventful recovery. If the tonsillectomy dissection is performed carefully, under direct vision, an anomalous major vessel should be seen before it is injured. Before doing an adenoidectomy, it must be ascertained by digital examination or mirror visualization of the nasopharynx that there is no possibility of a nasopharyngeal fibroma. If a firm mass is found, adenoidectomy should be deferred because surgical attack upon this tumor is usually followed by severe bleeding.

To prevent hemorrhage, it is the custom of some surgeons to prophyllactically administer vitamin K, capillary-constricting agents, calcium-containing preparations, estrogenic hormones, and other substances pre- or postoperatively, or both.[34–36] In the absence of established bleeding or clotting disorders, the rationale of such prophyllactic medications is questionable.[21] In view of the fact that most immediate postoperative bleeding is from one or more of the tonsillar arteries which are of sufficient caliber to be, at most, only partially affected by these drugs, their use is of debatable merit other than to reassure the surgeon. No drug will supercede a well-placed ligature in the prevention of postoperative hemorrhage.

The treatment of active bleeding from one of the tonsil arteries or veins involves finding the bleeder and controlling it. Although small vessels may close following evacuation of a clot and local pressure, it is usually best to return the patient to the operating room and explore the throat, possibly with anesthesia, if there is persistent bleeding. This should be done early, not as a last-ditch measure to forestall exsanguination. When oozing is persistent, the patient soon becomes apprehensive and restless, both of which accentuate the bleeding. Much bleeding from the tonsil or the adenoid areas slows definitely or stops following the administration of a narcotic given in sufficient dosage to sedate the patient. Transfusion, preferably with fresh whole blood, should be considered early, before exsanguination is impending, in persistent postoperative bleeding.[37] If the bleeding necessitates return to the operating room, certain measures facilitate location and control of the bleeders. These include good illumination, proper positioning so that the throat may be inspected easily and thoroughly, and good suction. Bleeding points should be ligated with a figure-eight catgut ligature. In the instance of multiple small bleeders, individual ligations, plus the application of an astringent, may be necessary. In the instance of multiple, small, oozing bleeders, good vasoconstriction often can be achieved by holding a tonsil sponge soaked with ether in the fossa for a brief interval. I also have found that good constriction of small oozers is produced by holding the suction tip in the tonsil fossa, not touching the actual bleeding point. The cooling and drying effect of the suction speeds the vasoconstriction and clot formation. If the oozing persists despite all efforts, the anterior and posterior tonsil pillars may be sutured together over a sponge or Gelfoam. When there is persistent adenoid bleeding, nasopharyngeal packing is indicated if removal of the clot from the nasopharynx and temporary insertion of a tampon does not suffice. This can be done with various materials by leading strings out of the nostrils and the mouth, in the conventional manner for the postnasal packs. However, it has been the author's experience that a much simpler and less traumatic postnasal pack can be made by using a small, indwelling Foley catheter with a 30-cc. bag. The catheter is inserted through one nostril and placed so that the bag is in the nasopharynx. The bag is inflated with 15 to 25 cc. of air (if the bag breaks, there will not be a sudden gush of fluid into the throat, causing choking), enough to bulge the balloon forward so that it presses against the posterior surface of the soft palate. The tension of the soft palate causes the balloon to apply gentle but firm pressure on the posterior nasopharyngeal wall, compressing the bleeders. This type of postnasal pack is very easy to insert and remove. It is also effective when small tonsillar bleeders accompany adenoid bleeding because, by stretching the palate and pillars, there is produced a compressing effect on the small blood vessels in the tonsil fossa. The balloon postnasal pack should be left in place for four to six hours. If all measures for control of tonsil or postnasal hemorrhage are to no avail, ligation of the external carotid artery on the affected side must be considered.

The bleeding which occurs in the interval between the fourth and the fifteenth postoperative days is usually an oozing type of short duration and most often subsides with minimal treatment. Rest, sucking ice chips, ice to the throat area, and mild sedation usually will expedite the cessation of bleeding. If late bleeding persists, there is usually a clot in the throat which must be evacuated and treated in the same manner as an immediate postoperative hemorrhage. Although the late bleeding is most often from capillaries, occasionally vessels large enough to cause exsanguination are encountered.[19,38] The large late bleeders should be treated in a fashion similar to treatment of immediate postoperative bleeding.

To prevent or treat adenotonsillectomy hemorrhage, the importance of adequate visibility while operating cannot be stressed often enough. The surgeon who operates from the side of the table frequently is at a disadvantage in the instance of lower pole bleeders and in the inspection of the adenoid area. The surgeon who relies upon the general illumination of the operating room or an overhead light also often places himself at a disadvantage during surgery in the throat. Many of the mouth gags which are used give less than optimum visualization of the pharyngeal structures, placing an additional encumbrance upon the surgeon. The author has found the following measures invaluable to insure good exposure in the oropharynx and nasopharynx, ease of manipulation of these structures, and facilitation of surgery:

1. The Rose position (Figs. 1 and 2) is one in which the oral structures are immediately visible so that it can be ascertained whether tonsil and adenoid removal has been clean and adequate. Bleeders can be seen easily and ligated as a primary procedure. In the search for postoperative bleeders, this position allows the operator greater control of the situation and liberty of movement. Secretions and blood flow by gravity into the upper respiratory passages, which are available to the suction and not into the larynx and trachea making toilet of the pharynx easier and preventing the likelihood of aspiration. In the patient having troublesome bleeding during surgery, the mechanical obstruction of the airway from blood or suction is largely eliminated by employing this operating position.

2. The use of a good head lamp during surgery is advised. Manipulation in the pharynx should not be attempted unless the operator can direct the illumination in such a fashion that he sees what he is doing and has control of the situation at all times. Many different good head lamps are available, and the physician who does throat surgery should use one at all times.

3. An adequate mouth gag which allows good visualization of the pharynx as well as ample room in which to work is a necessity to the throat surgeon. The Davis-Crowe apparatus (Figs. 3 and 4) or similar type of mouth gag in which the tongue depressor is an integral part of or can be attached to the main unit allows excellent exposure of the operative area, provides stability during operation, and is not dependent upon the tiring hands of an assistant. This type of instrument gives the surgeon freedom of both hands. The anesthetic gases are insufflated into the pharynx by the tube which is attached to the mouth gag, promoting good control but eliminating the anesthesia apparatus from the operative field.

4. Adequate suction apparatus to clean the pharynx during operation or while searching for bleeders is indispensable. When the Rose position and the Davis-Crowe mouth gag are utilized, the suction can be used by an assistant or by the surgeon with one hand while the other manipulates instruments.

5. Carefully chosen tonsillectomy and adenoidectomy instruments should be used. If the tonsils or adenoids are removed incompletely, leaving stubs, bleeding is more likely, and further

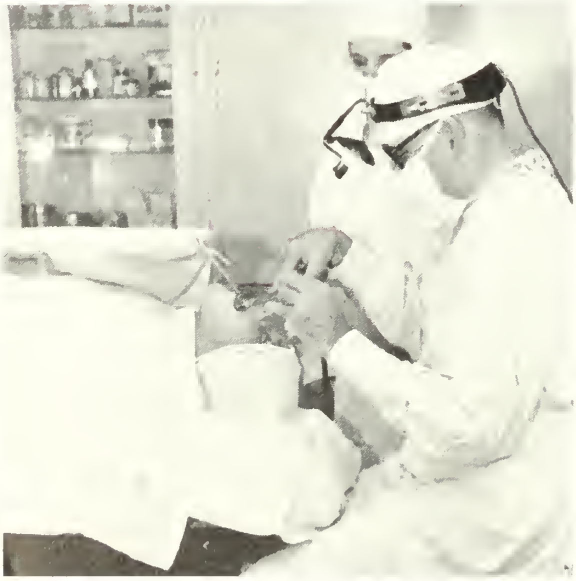

Fig. 1. Modified Rose position used by author in adenotonsillar surgery. Cameron-Lempert headlight and Davis-Crowe mouth gag are being employed here. Shoulders elevated and head rotated backward by pad beneath shoulders

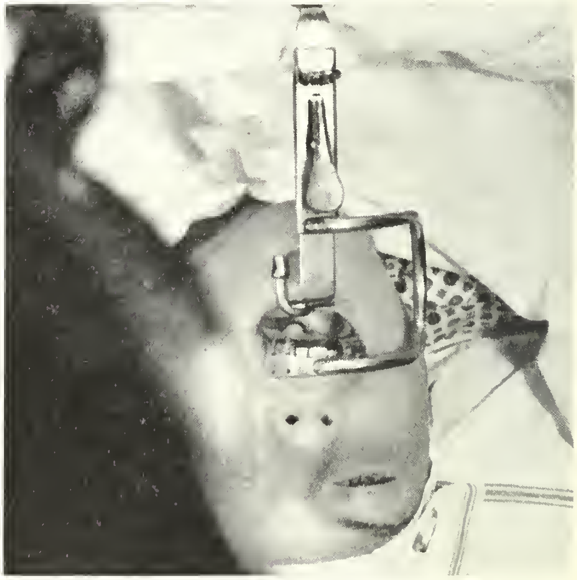

Fig. 2. View of pharynx as would be seen by an observer looking past head of surgeon. Instruments immediately available on Mayo table over operating table and tip of tongue depressor attached to mouth gag suspended from Mayo table

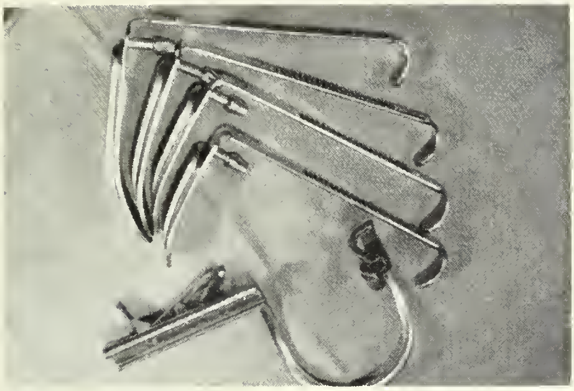

Fig. 3. Davis-Crowe mouth gag disassembled to show main unit and various sized tongue depressors

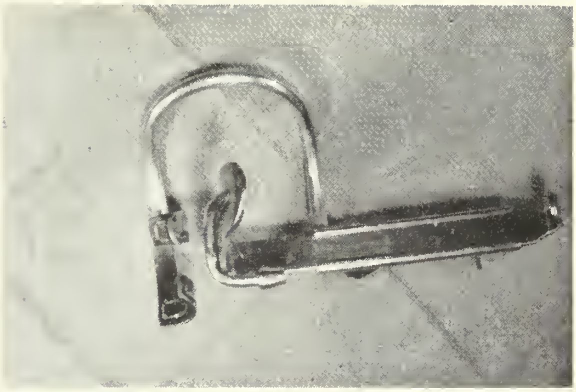

Fig. 4. Mouth gag assembled showing anesthetic gas tube attached to tongue depressor blade

surgery may become necessary. Tonsil stubs, which are most commonly left in the lower poles, should be removed with a snare or by dissection at the time of the primary operation. Good indirect visualization of the adenoid area can be obtained on the operating table with the technique outlined by Obregon[39] wherein a laryngeal or nasopharyngeal mirror is used to inspect the adenoid area preoperatively to estimate the amount and location of the adenoid tissue and later to demonstrate the adequacy of its removal. This technique also can be used in postoperative adenoidectomy bleeding to determine more accurately the source of the bleeding. This procedure may be modified further to facilitate inspection of the nasopharynx by using fine catheters in the nostrils for retraction of the soft palate. The Yankauer speculum also can be used to inspect the nasopharynx.

Atelectasis, pneumonia, lung abscess. After tonsillectomy or adenoidectomy these have been observed with variable frequency in the past.[40] Jackson and Coates[41] wrote in 1929: "In the past four years approximately 950 cases of lung abscess have been reported by observers in this and other countries. Almost 50% of these have occurred subsequent to tonsil removal." Various reports cited by these authors indicated that the incidence of lung abscess occurred "once in 2,500 to 3,000 tonsillectomies," "in 1 out of every 781 cases," and "in 692 cases of pulmonary abscess observed at Mayo Clinic 21% followed operative procedures. Of these post-operative abscesses, 31% followed tonsillectomy." In a series of 652 carefully studied adenotonsillar surgery patients, it was the author's experience[14,16] to see one instance of mild atelectasis which subsided spontaneously (0.2%) but no other pulmonary complications. Reports of lung disease resulting from adenotonsillar operations have not appeared often in the recent literature.

Although aspiration of foreign material may occur during or after surgery and atelectasis or postoperative pneumonia may follow any throat operation, they are best treated by prevention. They are usually enhanced by awkward operating positions, poor anesthesia, neglect of the airway, inadequate suction in the pharynx, and poor immediate postoperative care of the patient. To reduce the possibility of ingestion of food or beverage, it is preferable to admit these patients to the hospital the evening before surgery, give only a light supper, and prohibit oral intake for at least eight hours. Adequate premedication before surgery, including atropine or a similar agent, definitely decreases the quantity of throat secretions and reduces the likelihood of aspiration. In children, loose teeth or chewing gum should be sought by the anesthetist and the surgeon, and, if necessary, be removed before or during surgery. The head-low operating position (Rose position) facilitates patency of the airway and makes toilet of the pharynx and larynx easier. Before discharge from the operating suite, the throat should be carefully aspirated. During the operation, fragments of lymphoid tissue should not be allowed to clutter the throat, inviting aspiration. If the operator is unsure or not experienced in throat surgery, a greater margin of safety in the management of the airway may be had by employing an endotracheal tube for anesthesia.[42–44]

In a series of patients who underwent adenotonsillar operations and who were bronchoscoped at the conclusion of the procedure, it was shown that the average amount of blood or mucus, or both, in the trachea and bronchial tree was about 2 cc.[14–16] In a healthy individual, this is not enough to cause trouble and is usually coughed out immediately. This would suggest that carefully performed adenotonsillar operations, under general anesthesia in the hands of a trained surgeon and attended by careful toilet of the upper airway, are not likely to be accompanied by foreign material in the lower respiratory tract.

Careful positioning of the patient after throat surgery is essential for the prevention of aspiration. Adequate dependent drainage of secretions or blood usually is best achieved when the patient is on his abdomen or on his side with his head turned to one side. Lowering the head of the cot utilizes gravity to help free the airway of foreign material. Oxygen, suction, and resusitation equipment to combat pulmonary or cardiac emergencies should be immediately available at all times. Inadequate care of the patient after he has left surgery may be the source of pulmonary complications. Aspiration of blood or mucus, or both, from the throat and inhalation of vomitus, teeth, or other foreign material may occur when the patient reaches his room if he is not carefully attended. It is for this reason that the concept of the postanesthesia room has been promoted in many hospitals. Where an intensive postsurgery care unit is functioning there is a drastic reduction in the complications from the anesthesia or surgery. The use of postanesthesia rooms or departments is to be encouraged.

In the event that aspiration of foreign material, atelectasis, or bronchial obstruction is suspected in the postoperative period and examination confirms its presence, immediate bronchoscopy should be done by a trained endoscopist. Pneumonia in the absence of some form of bronchial obstruction after tonsillectomy or adenoidectomy, or both, is not common. If it occurs despite bronchial toilet, cultures should be made of the bronchial secretions, and appropriate antibacterial and supportive therapy should be instituted immediately.

Cardiac arrest. This is also a preventable catastrophy which most often results from interference with the blood oxygen saturation. It has been reported to be quite frequent in throat operations if there is an obstructed airway. During the past twenty-five years, between 750 and 1,000 adenotonsillar operations have been performed in the Sioux Falls hospitals per year. The first recognized cardiac arrest occurred about one year ago. Despite intense resuscitation efforts, the child died. Hypoxia caused by inefficient respiratory efforts as a sequal to poor airway, aspiration of secretions, or too deep anesthesia predisposes the myocardium to extrasystole, arrhythmia, and ultimately to arrest. Too light anesthesia which may be accompanied by excessive release of epinephrine into the bloodstream, especially in the presence of ether, also may be a factor precipitating cardiac irregularities or asystole. During light anesthesia, laryngeal spasm often is encountered, especially if the hypopharynx or the vocal cords are traumatized. This can be circumvented by avoiding manipulation in the throat until there is good induction of anesthesia and the patient is in the third stage. An adequate supply of oxygen to the patient at all times during the operation is the best guarantee against cardiac arrest.

Fatal cardiac arrest often can be averted by an alert anesthetist who watches the patient carefully. If difficulty is encountered during the induction, the surgeon should not commence operating until an unobstructed, relaxed patient is secured by the anesthetist. The operator should never "push" the anesthetist or the anesthesia to satisfy his own convenience. In the event that the airway cannot be controlled adequately by open or insufflation methods, endotracheal intubation should be accomplished before the operation is commenced. Should pulse irregularities or other indications of cardiac distress be observed by the anesthetist, attention should be directed immediately to the airway, and pure oxygen should be given. If an endotracheal tube is not in place, one should be inserted as soon as practicable so that the airway may be controlled. Surgery should either be canceled or not restarted until the cardiac emergency is definitely past. In the case of cardiac standstill, resuscitation by either the closed or open methods, ventilation with oxygen utilizing the endotracheal tube, and other standard measures for stimulation of the failing heart should be instituted at once. No operating suite should be without some form of cardiac resuscitation equipment at all times for these emergencies. Patients who have a history of myocardial disease should be evaluated carefully before surgery and operated upon only when the heart disease is quiescent and improved as much as possible. In the event a patient with myocardial abnormality requires throat surgery, adequate oxygenation must be guaranteed if cardiac complications are to be prevented.

Recurrent and residual lymphoid tissue. With proper positioning of the patient at surgery, good illumination in the pharynx, and careful surgical techniques, residual tissue should not be left in either fossa after tonsillectomy. Any small nubbin of tonsil tissue seen during inspection of the pharynx at the conclusion of tonsillectomy should be removed immediately.

Although tonsillectomy is better deferred until at least four years of age, it is necessary quite

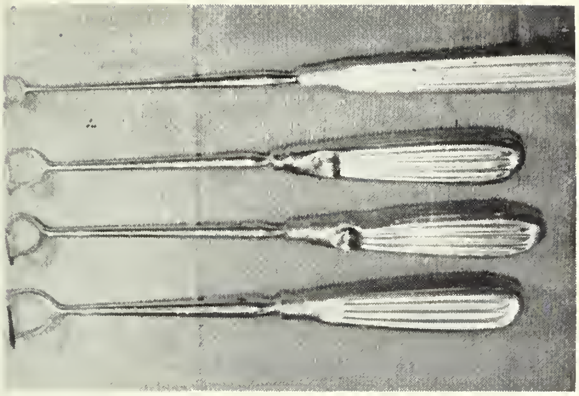

Fig. 5. La Force adenotomes

often to attack the adenoid tissue in very young children who have chronic or recurrent otitis media. In these young children, the likelihood exists that lymphoid tissue may recur in the nasopharynx. Despite this, it is often expedient to eliminate the obstructing lymphoid tissue, if only temporarily, so that the eustachian tube and middle ear pathology are treated.[9,10] If adenoidectomy is indicated in a child under four years of age, it is wise to forewarn the parents concerning the possibility of recurrent adenoids.

Adenoidectomy, although one of the most frequent operations performed upon man, is often one of the most incomplete and poorly done procedures which has ever been devised. Many times the nasopharynx receives a quick scrape and a prayer, resulting in removal of only the superficial layer of the lymphoid tissue.[11] In many instances, the adenotome is the only thing used to remove this tissue. This instrument, in the hands of the careful surgeon, is quite capable of removing the majority of the midline lymphoid tissue (Fig. 5). However, in patients with otitis media, in whom it is desired to eliminate the lymphoid tissue about the eustachian tubes and in the fossae of Rosenmuller, adenoidectomy with the adenotome is not adequate even in trained hands. For thorough curettage of the nasopharynx, either the Barnhill or the Jones adenoid curettes or a combination of the 2 usually produces the best results (Fig. 6). Adenoid punch forceps can be used with care to remove small tags. In unskilled hands, there is great potential danger to the eustachian tubal cushions from adenoid punches. Although considerable information can be obtained by digital examination of the nasopharynx, this does not replace careful scrutiny of the eustachian tubal areas by direct examination with the nasopharyngeal mirror or the Yankauer speculum. In patients with middle ear disease, in whom thorough exenteration of the adenoids is desired, the difference between adenoidectomy and successful adenoidectomy rests entirely upon the skill of the surgeon who performs this operation. Although it is often helpful in eliminating small clusters of adenoids, radiation therapy to the nasopharynx never can be substituted for thorough, competent surgery.[11]

In patients who have otitis media which results from nasopharyngeal disease, the surgeon often must perform myringotomy as a separate procedure or at the same time as the adenotonsillectomy or adenoidectomy to eliminate fluid from the middle ears. When serous otitis media exists, adenoidectomy alone does not suffice, and myringotomy must be done if the patient is to be helped. It is quite common to see patients who have undergone incomplete adenoidectomy develop serous otitis media later. If fluid is present in the tympanum when the residual adenoids are removed, myringotomy also should be performed and fluid in the middle ear aspirated. If the fluid in the tympanum is serous, myringotomy alone is sufficient in most instances, but if the fluid is thick, sticky, and glue-like, it is usually expedient to place a polyethylene tube (flanged or unflanged) or a plastic grommet into the myringotomy wound to create a temporary perforation in the drum. This allows the middle ear space to reform (Figs. 7 and 8). The surgeon who is not capable of performing a myringotomy should not attempt to operate upon the pharyngeal lymphoid tissue of persons with chronic or recurrent ear disease. In a group of 362 patients who underwent tonsillectomy and adenoidectomy or tonsillectomy or adenoidectomy in a forty-four-month period, the author[11] observed the following: (1) tonsillectomy and adenoidectomy for respiratory infections without ear disease, 176, (2) adenoidectomy (primary operation) for ear disease, 7, (3) adenoidectomy and myringotomy for ear disease (primary), 6, (4)

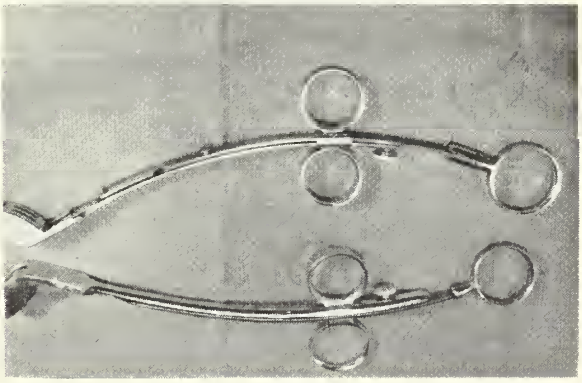

Fig. 6. Barnhill adenoid curettes having various sizes and shank lengths. Curettes having longer struts supporting cutting edge (Jones) facilitate reaching small islands of lymphoid tissue in recesses of nasopharynx.

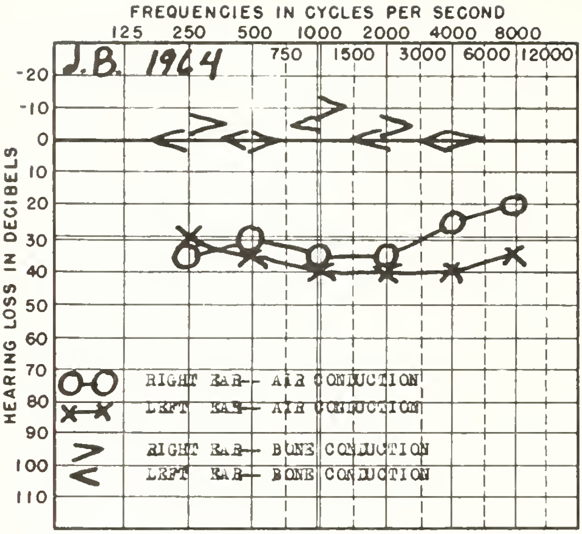

Fig. 7. (J. B.) Audiogram showing moderately severe bilateral conduction hearing loss in an 8-year-old child caused by thick fluid in middle ears, resulting from residual adenoids

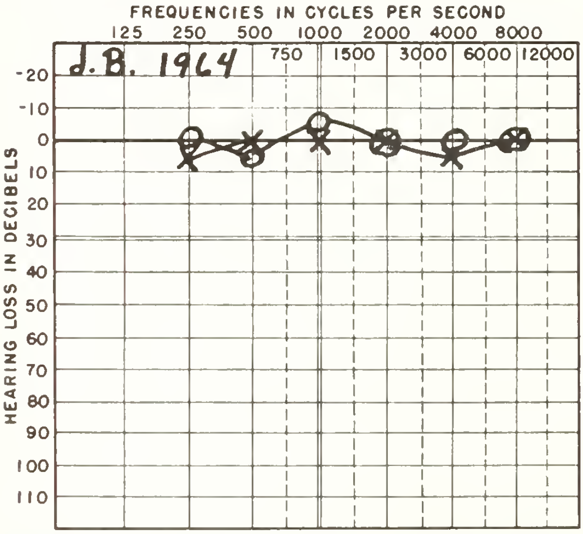

Fig. 8. (J. B.) Follow-up audiogram three months after thorough, careful adenoidectomy, myringotomy, and placement of polyethylene tube into middle ear spaces, showing marked improvement in hearing. Symbols as in figure 7

tonsillectomy, adenoidectomy, and myringotomy (primary operation), 69, (5) tonsillectomy, 42, and (6) adenoidectomy and myringotomy (reoperated patients which had had tonsillectomy and adenoidectomy done elsewhere for ear infections or other disease), 62.

Primary tonsillectomy, adenoidectomy, and myringotomy were performed together upon 19%, whereas 17% of this series of patients were those who had had adenoids removed elsewhere and then required additional surgery because of serous otitis media.

The best treatment for residual tonsils or adenoids with or without middle ear disease lies in prevention. Thorough knowledge of the anatomy, pathology, and physiology of the structures involved should preclude ventures into the realm of surgery within the throat. These operations should be performed with good anesthesia, adequate illumination and visibility within the operative field, and meticulous surgical techniques. If symptomatic adenoid or tonsil tissue is found in a postoperative patient, careful reoperation is the treatment of choice.

Other complications. Other complications of throat surgery which have been reported in the past and which still are seen occasionally include: (1) paresis of the soft palate, (2) atrophy or amputation of the uvula, (3) damage to the posterior part of the vomer, (4) injury to eustachian tube orifice, (5) injury to anterior surfaces of the atlas vertebra and the sphenoid bone, (6) cicatricial scarring of the tonsillar pillars and pharyngeal wall from traumatic surgery, (7) alterations in the voice, (8) lacerations in the soft palate, (9) injury to the styloid process and stylohyoid ligament with residual postoperative throat complaints, (10) poliomyelitis as the result of tonsillectomy in the summer, (11) mediastinal emphysema, and (12) persistent throat discomfort after surgery.[45–51] Most of these are not common and can be averted by careful surgical judgment. Tonsillectomy performed after about 30 years of age quite often is attended by considerable, prolonged throat discomfort, persistent dryness, rawness, and irritation. Patients over 30 years of age should be screened very carefully to determine the necessity for tonsillectomy before operation is considered because the postoperative chronic throat discomfort can outweigh the preoperative difficulty.

It has been the author's experience to observe rheumatic fever reactivated by tonsillectomy and adenoidectomy, a bout of rheumatic fever precipitated by tonsillectomy and adenoidectomy, and complication of the postoperative period by measles, chicken pox, and mumps, the exposure to which was unrecognized. Sepsis in the immediate postsurgery period accompanied by a temperature of 105°, attributed to transitory bacteremia following tonsillectomy and adenoidectomy which was done too soon after a respiratory infection, also occurred on one occasion in the past ten years. All of these complications were treated by conservative means, including appropriate antibiotics and so on, and subsided without trouble. Only the child who developed measles postoperatively required hospitalization for fluid therapy. Prevention of these complications should be by very careful screening of the patients for possible exposure to infections before surgery and cancellation of surgery if any question of exposure to infection is elicited.

SUMMARY

Tonsil and adenoid surgery today is as much the province of the general practitioner, the general surgeon, and the pediatrician as it is the field of the otolaryngologist. Refinements in anesthesia and surgical techniques and improvements in postoperative care of the patients have largely eliminated many of the complications of yesteryear. The most persistent obvious complication following these operations was and still is postoperative hemorrhage. Some of the less obvious complications, the best examples of which are residual adenoids and otitis media secondary thereto, have been, in the author's experience, much more frequent and worrisome than has been manifest bleeding. Control of bleeding in most instances involves mechanical obliteration of the lumen of an open blood vessel by one of several techniques, the most important of which is preventive ligation at the time of surgery. Complicated bleeding necessitates further corrective treatment. Control of the more insidious problems of residual adenoids and otitis media falls into the realm of extensive education concerning the anatomy, physiology, and pathology of the throat, nose, and ears for individuals who contemplate doing adenoid-tonsil surgery.

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Fargo Clinic Series

Ear, Nose, and Throat for the General Practitioner

Part II – The Nose

DUANE W. NAGLE, M.D.
Fargo

THE EXTERNAL NOSE is made up of the nasal bones, the frontal process of the maxilla, the upper lateral nasal cartilage, and the lower lateral nasal cartilage. The external appearance of the nose is usually altered by trauma which will result in a fracture of the nasal bones with displacement. The external appearance can be altered without an actual fracture of the nasal bones, and in this case the upper and lower lateral cartilages are usually displaced by a traumatic deviation of the septum. This can be quite easily determined by palpation and by inspection of the nasal septum under direct vision. When the septum is deviated, the external appearance may or may not be altered, but the airway of the nares is always changed. The degree of change depends upon the amount of deformity of the septum. The septum itself is made up of a large quadrangular piece of cartilage which allows flexibility of the tip end of the nose. This cartilage joins with the bony septum, made up of the vomer and also a thin, perpendicular plate of bone coming from the ethmoid area. The deformity may be so severe as to involve the bony portion of the septum as well as the quadrangular cartilaginous portion. When the nasal septum is inspected the head mirror and nasal specula should always be used for maximum visibility. The tendency for most patients is to tilt their head far back during the examination. This is incorrect. The patient's head should be placed so as to look directly at the examiner. With the speculum in one hand and the other hand on the patient's head, the subject can be positioned quite easily. The turbinates can be decongested with 0.25 or 0.5% phenylephrine hydrochloride (Neo-Synephrine), which will greatly aid in viewing the posterior portion of the septum. When the turbinates have been decongested, spurs of the septum often become quite visible, which under ordinary circumstances could be missed if the turbinates were not decongested. When the tip of the quadrangular cartilage is displaced, the cartilage may actually protrude into one naris and block the opening considerably. Usually there is a compensatory bulge of the cartilage on the opposite side, thereby blocking both sides. Many times the cartilaginous obstruction of the septum on one side of the nose may be mistaken for a tumor when actually it is only the badly deformed cartilage bulging into the naris. If the airway is obstructed or openings to the sinuses are blocked, a septoplasty should be performed to straighten the septum; if the deformity is not blocking the airway or the opening of the sinuses, I do not feel that a septoplasty is indicated. The individual's nasal airway can be checked by taking a piece of cotton in each hand and placing them in front of the nose. As the patient inhales and exhales, the wisp of cotton will move back and forth, checking movement of air through the nose. One will commonly find that the patient may either inhale or exhale through one nostril at a different rate than from the other. When the patient inhales, air comes in high through the nose and on exhalation comes out low. If

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there is an obstruction high in the nose, the patient will find that it is more difficult to breathe in than it is to breathe out and vice versa if the obstruction is low. When the sinuses are blocked by obstruction the individual will usually have a purulent sinusitis involving one or more sinuses on the involved side. The doctor not only has to relieve the obstruction but also must clear the sinus infection. More will be said about this further in the paper.

NASAL FRACTURES

When trauma to the nose has occurred, whether it is in children or adults, the nose should always be examined externally and internally. Often there will be fractures involving the nasal bones without displacement, and these do not always require reduction. The inside of the nose should always be examined and decongested to be certain that there is not a hematoma or marked dislocation of the nasal septum. When the nasal bones are fractured or there is any question of fracture, I feel x-rays should always be taken, even in children, if for no other reason than from the medical-legal standpoint. People in this day and age just naturally expect that x-rays will be taken, and I feel that one is leaving himself wide open for trouble if x-rays are not taken.

The nasal fracture may be reduced under local or general anesthesia. When local anesthesia is used the turbinates are decongested with 0.25% phenylephrine hydrochloride mixed with 2% cocaine, following which the external nose is infiltrated with 1% lidocaine hydrochloride (Xylocaine) with 8 drops of adrenalin to the ounce. A ½-in. petroleum jelly (Vaseline) gauze is then placed inside the nose, and a small periosteal elevator or even the handle of a Bard-Parker knife is used to elevate the fractured bones into normal position. The ½-in. petroleum jelly gauze strips are then used as packing to hold the bones in good position. Should the septum be dislocated, one can overcorrect it. It has been my experience that septal correction is notoriously poor and eventually will buckle, but at least the deformity can be minimized. Should the bony external nose be shattered, as seen in car accidents, the procedure is usually far more complicated and usually will involve fractures of the malar bones. These malar and nasal fractures are considerably more complicated and should be referred to someone who has had experience in open reduction.

FOREIGN BODIES IN THE NOSE

Foreign bodies are almost always seen in small children who have placed various objects in the nose while at play. Considerable time in some cases may pass before the foreign body is discovered. Usually the child has been taken to the doctor because of a purulent, foul discharge coming from the nose. When the nose is examined and the turbinates decongested, the foreign body usually can be spotted quite easily. If the child is cooperative it is usually not too difficult to remove these foreign bodies either with a small wire hook or forceps, depending upon what the object may be. After the foreign body has been removed it is always well to check the nostril again to be certain that there are no more. The opposite naris should also be inspected to be certain that it is clear. If the child is uncooperative, it may be necessary to sedate the child or even to use general anesthesia in order to remove the object from the naris. I feel that it is very important to determine what the foreign body is, since this often helps to determine how it best may be removed. Grasping a foreign body by forceps is not always the best way, since it may only push the object further into the posterior portion of the nose. Suction is very valuable, not only in removing mucus from the nose but also in removing the foreign body itself.

NASAL POLYPS AND NASAL ALLERGY

Nasal polyps are certainly the most common form of tumor seen in the nose and usually involve both sides. They generally originate from the middle meatus and may completely obliterate the nasal space and extend all the way back into the nasopharynx. Polyp formation of the nose is the result of an allergic phenomenon which still is not completely understood. Mere removal of nasal polyps does not solve the problem. These polyps all too frequently will recur within weeks to months after being removed. Every attempt should be made to find and to eliminate the antigen causing the sensitivity. Some of these individuals can be skin tested and then desensitized over a period of weeks to months with excellent results while others do not seem to respond to any form of treatment. Antihistamines are used with varying degrees of success but are certainly worthwhile to try. Steroids are used but with caution. I think the most common antigens are of the inhalant type, such as pollens, molds, dust, and animal dander. Certainly the synthetic detergents now widely used are very irritating to nasal respiratory mucosa. Skin testing is not always the answer, but if elimination of inhalant type antigens appears to give a degree of relief, I do feel it would be worthwhile to make skin tests. I have had a number of individuals who have had good relief of nasal allergies by desensitization and elimination of the inhalant allergens.

Another problem which causes considerable discomfort to the patient is the use of excessive amounts of nasal sprays. Almost any of the nasal decongestants with prolonged use will cause rebound swelling of the turbinates. I think the most vicious one is naphazoline hydrochloride (Privine) as some individuals using it seem to become almost addicted. The only way to treat these patients is to stop the use of the spray and to substitute one of the oral antihistamines to help them get some relief of congestion. The time required to eliminate the effects of the spray is at least seven to ten days. Sedatives at night may be necessary for a few days.

NASAL HEMORRHAGE

The most common site for nasal bleeding is from the so-called Kiesselbach's plexus, which is a group of vessels on the anterior portion of the nasal septum. This area is also the most common site for crusting on the nasal septum, and, when forcibly removed, the crust will tear the mucosa and allow vessels to bleed. Usually pressure applied externally by grasping the nose with the thumb and index finger and compressing the whole lower half of the nose for three to five minutes will stop the bleeding quite easily. If bleeding recurs, the best way to treat it is to cocainize the anterior portion of the septum and to cauterize the bleeding point with either chromic acid or silver nitrate. The cauterization should be limited to the bleeding point, since widespread use of the cautery on mucosa destroys the cilia and scarifies the mucous membrane. (I have seen nasal spaces almost scarred shut by adhesions between the septum and the turbinates caused by overenthusiastic use of cautery in the nose.) The small crust that forms at the site of cautery should be kept soft for two weeks by having the patient apply petroleum jelly to the septal area gently with the soft side of a finger several times a day.

For effective treatment of any nasal hemorrhage, the head mirror and nasal specula and suction are musts. The bleeding site should be visualized directly, usually possible with suction. The only time that difficulties arise is when the bleeding occurs underneath a turbinate or superiorly and posteriorly to it. When the bleeding comes from the superior area it is usually the anterior or posterior ethmoid arteries that are involved. When bleeding comes from the lower and posterior portion it is usually the posterior septal nasal artery that is bleeding. If possible, the turbinates should be decongested with a mixture of 0.5% phenylephrine hydrochloride and 5% cocaine. This does 2 things: First it decongests the turbinates and second it numbs the inside of the nose. Whenever possible, bleeding sites should be cauterized under direct vision either with silver nitrate, chromic acid, or electrocautery.

When the bleeding cannot be visualized either directly in the nose or indirectly with the mirror in the nasopharynx, it is then necessary to use a pack. I like the so-called Fox balloon which can be inserted through the anterior portion of the nose and then inflated in the nasopharynx. An assistant can hold the balloon while the nasal fossa is packed in front of it with ½-in. petroleum jelly gauze strips. Packing should always begin on the floor of the nose starting posteriorly and coming anteriorly under and alongside the inferior turbinate. Successive layers are then put in place until the entire nasal fossa has been packed. The pack can be left in place for at least twenty-four hours, following which the Fox balloon can be deflated without actually removing the pack. Should bleeding recur, the balloon can be reinflated and left another twenty-four hours. Should bleeding not occur, the pack can then be gradually removed. There has been only one occasion in my experience when the anterior ethmoid artery had to be ligated in the orbit of the eye to control bleeding high in the nose and only two occasions when the external carotid had to be ligated to control posterior nasal hemorrhage. Transfusions have had to be given on rare occasions for loss of blood. Where there is abnormal bleeding or generalized oozing from the nose, other conditions should be looked for, such as blood dyscrasias or other systemic diseases.

SINUS DISEASE

This undoubtedly is the most common nasal disease known to man. Everyone thinks that he has or has had sinus trouble and that any mucoid drainage is sinus disease. There are large sinuses called the maxillaries under the eyes and another pair over the eyes called the frontals. The ethmoids are located in the area medial to the orbit of the eye just above the maxillary sinuses and just below the frontal sinuses. They are made up of a large number of cells which drain from one to another. In addition there is another set of sinuses called the sphenoid sinuses which are located behind the posterior-superior portion of the nose. The frontal and maxillary sinuses may be transilluminated in a dark room, but the ethmoid and sphenoids cannot. When the light passes through the sinuses it usually indicates that no fluid or soft tissue mass is present.

However, if the sinuses do not transilluminate, it does not necessarily mean that they are diseased; such sinuses may be undeveloped and small. The only exact way of evaluating the sinuses is by x-ray. Anteroposterior and lateral films are always taken along with a Water's type view for evaluation of the sinuses. Fluid levels show very well along with soft tissue masses, and bone destructive lesions can be identified. The sinuses most commonly involved with disease are the maxillaries and the ethmoids. The maxillaries can be easily entered and the contents aspirated or washed out through the natural ostium. Unfortunately there is no way that the ethmoid sinuses can be washed, but by providing good drainage in the middle meatus along with antibiotic therapy most acute infections will subside. The frontal sinuses can be washed, but usually this is quite difficult because of the narrow and often inaccessible opening into the frontal sinuses. Fortunately the sphenoid sinus is not too often involved. When it is, its opening also may be difficult to visualize for irrigation. Unless one has had some experience with the sinuses it is always better to refer these cases. General practitioners can certainly screen a large number of these individuals and treat them very adequately. When an acute or true chronic sinus problem is found these individuals can then be sent for consultation.

Ethmoiditis in children is not at all uncommon and is usually characterized by an upper respiratory infection followed by a red, swollen, and tender eye which comes on very rapidly. This complication is orbital cellulitis secondary to the ethmoid infection. Usually by the use of nasal decongestants, adequate drainage, and high doses of antibiotics this condition will subside quite rapidly. The maxillary sinuses with an ethmoid infection in children should always be checked by x-ray to be certain that there is not a superimposed maxillary sinus infection on the involved side. This infection should be eliminated as soon as possible. There are occasions where children may have to have the maxillary sinuses drained but fortunately this is not too common. There are times, too, when it is necessary to operate on the ethmoid sinuses, although I have never had to.

CARCINOMA

Carcinoma involving the nose and the paranasal sinuses is not too common but does occur frequently enough so that one must be aware of their presence. Any granulation-like tissue growth occurring inside the nostril along with purulent drainage should always be examined and biopsied with the idea that this may be carcinoma. Loosening of teeth or granulations about them or proptosis of the eye or diplopia may be manifestations of maxillary sinus malignancy. X-rays taken in the Water's view will disclose whether or not the sinus is involved or if there is bony destruction. Such cases should always be treated as rapidly as possible, usually with a combination of surgery and radiation.

COSMETIC SURGERY

There are always individuals wanting information regarding cosmetic surgery for the nose. Generally these patients are young women who think that the nose is too large, too bulbous, or too humped and want it altered to be more presentable. This can be done with the so-called rhinoplasty-type procedure. The bony external nose is altered along with the upper and lower lateral cartilages. The tip can be changed by altering the lower lateral cartilages which will produce a narrowed effect, a hump can be removed surgically, or a saddling effect can be built up with cartilage and bone. When cosmetic surgery is performed it is always important to remember that the patient's airway has to be adequate following surgery; otherwise the patient may end up having a beautiful nose which will not serve its original purpose. I have seen a number of such cases. Another important consideration is the psychological motivation that these people have for wanting the nose beautified. Sometimes it is a grave error to try to change the appearance of such an individual's nose as he is never satisfied with the result. One should also be cautious of individuals who have minimal deformities who want the nose altered, since they often have psychological problems.

POSTNASAL DISCHARGE

Without any question this is one of the more common complaints in ear, nose, and throat work. It can best be defined as a sensation which is not normally present and is localized to the posterior-superior surface of the soft palate and the oral pharynx portion of the throat. The sensation of fullness ordinarly should be relieved by swallowing, but in some instances it becomes evident that swallowing evokes a vigorous pharyngeal reaction known as "hawking." "Hawking" consists of a fluttering of the soft palate against the posterior pharyngeal wall in an attempt to dislodge whatever is present. Unfortunately, this repetitious hawking generates a vicious cycle and the individual soon develops a very sensitive nasopharynx which will act as a tripping mechanism for gagging and sometimes even vomiting.

Physiologically it is important to realize that there should be some postnasal drainage that the individual is normally unaware of. The normal secretion from the mucus glands of the respiratory epithelium contains 97% water and 3% mucin and may vary in volume depending upon the individual. One to 2 quarts of mucus are swallowed every twenty-four hours. The amount of mucus produced is always greater in smokers than in nonsmokers. The posterior two-thirds of the nose has the mucus blanket replaced every ten minutes but mucus in the anterior third is replaced every hour. The normal mucosa is respiratory in nature and as long as it remains intact the cilia can move the mucus posteriorly until it can be passed into the pharynx-hypopharynx by swallowing. The mucus then passes into the gastrointestinal tract. Most individuals do not appreciate just how labile the nasal mucosa can be. The temperature outside may be as much as –10° F. and inside 70°. This is an 80° difference in temperature, but still the respiratory mucosa can continue to function normally. This entire process is under the control of the autonomic nervous system and as long as it is not disturbed, structural deviation will not alter the normal movement of the mucus blanket. The only way that structural deviation could interfere with normal function would be if the deformity were severe enough to obstruct the nasal passage or to cause enough damage to the normal mucosa to interrupt the normal ciliary movement of the mucus. Vasomotor instability is certainly a big factor in disturbance of nasal physiology but, at the same time, probably cannot be classified as true postnasal drainage. The things that must be considered which will alter normal physiology of the nose are as follows:

Atmospheric conditions. In our section of the country extremes in temperature are a problem. Most of the homes are overheated and underhumidified and will most likely continue to be so for some time. I have been in many homes where humidity was not 10% and the temperature was closer to 80 than 70° F. Under these conditions the nasal mucosa is fighting a losing battle in its attempt to humidify the superheated dry air. The secretion then becomes thick, and secondary infection can take place. Consequently, people living in these conditions are more susceptible to the common cold and secondary infection. They make up the families that will have colds from the start to the end of the heating season. I think it is well to take time to explain to these people why it is important to keep the air moist and the temperature down to 70° F.

Irritants and stimulants. Smoke, dust, fumes, and other irritants are also important factors, especially when one considers that a large number of homes are heated by hot-air furnaces or space heaters. Not only is the lack of humidity irritating but smoke and fumes also irritate the nasal mucosa. Certainly the effects of cigarette smoking have to be considered. There is no question that smoking is irritating to the respiratory mucosa.

Emotions. This is an important factor in altered nasal physiology. Today it is more of a problem than ever before because of the difference in the way we live—at a much faster rate and under greater tension than twenty-five or thirty years ago.

Endocrine and metabolic functions. Here again there are a great number of complications because the ductless glands control so many functions of the body, including the respiratory tract. One has only to look at the effects of hypothyroidism, hypoadrenalism, and hypopituitarism.

Diet. This was formerly thought to be of great importance. Fifteen or twenty years ago it was very common to be treating the various disorders by diet. Today we know that certain individuals cannot eat various foods or they will develop rash or acute rhinitis. Here the respiratory tract acts as the shock organ.

Local causes of discharge are (1) sinus infection and allergy, (2) structural abnormalities, such as deviation of the septum, turbinate hypertrophy, lymphoid hyperplasia, and scar tissue and mucosal metaplasia, and (3) atrophic rhinitis.

When one approaches the problem of postnasal discharge in the office, a good history is obviously very important. It is very important to note when the discharge began and also if there are things in the home or at work that make the drainage worse or better. The nature of the discharge is important because if an infection is involved, the drainage is usually purulent, whereas a clear mucoid drainage certainly would indicate that infection is not a problem. A good examination of the nose, nasopharynx, oropharynx, and sinuses is extremely important. Should there be any question about the sinuses, it is always well to take x-rays. The most valuable x-rays for sinuses are the Water's view and a lateral. Transillumination of the sinuses is helpful as far as frontals and maxillaries are concerned, but the ethmoid and sphenoid sinuses cannot be evaluated in this manner. Should the frontal and maxillaries transilluminate well, one can be fairly certain that there is no infection or tumor present. If they do not transilluminate, x-rays are a necessity to tell what type of trouble is present. Often the sinuses may be undeveloped and, of course, will not transilluminate well. I think in most instances the so-called postnasal drip is not on an organic basis but is usually due to constant irritation due to clearing of the nose and throat. Certainly a good number of these are due to lack of humidity, increased temperature, smoking, and allergic irritants which can be helped in most instances. When the drainage is purulent, the sinuses in most instances are involved. The most commonly infected are, of course, the maxillaries, ethmoids, and frontals. Occasionally the sphenoid sinus may be involved, but fortunately this is not too common. If there is no infection I think it is absolutely essential that the patient be given an explanation of what is normal and what is not normal as far as drainage from the nasopharynx is concerned. If the patient has had this over a period of years, the likelihood of convincing him that it is not abnormal and of being able to do something for him is quite remote.

CAROTID-BODY TUMORS, usually benign and slow-growing, often encompass the carotid bifurcation or extend to the base of the skull, making excision impossible without carotid artery damage. Because of high morbidity and mortality rates in artery ligation, such tumors should be left intact unless removal can be accomplished without interrupting arterial flow. Symptoms usually are of little diagnostic value, and exploratory surgery should be performed unless the lesion is hopelessly inoperable. The tumors usually are encapsulated, globular, and reddish-brown or reddish-gray. Biopsy is not helpful and may result in hemorrhage. Excision is done only if carotid vessels will not be sacrificed. Even an apparently malignant tumor is better left undisturbed than excised with ligation of arteries.

DONALD C. MC ILRATH, M.D., and WILLIAM H. RE MINE, M.D., Mayo Clinic and Foundation, Rochester, Minn. Surg. Clin. N. Amer. 43:1135-1144, 1963.

ANTERIOR RESECTION OF SIGMOID AND RECTUM without colostomy may be curative for carcinomas 5 cm. or more above the anal margin. Even when metastasis or local invasion will not permit complete removal, the operation may be palliative. Preliminary results seem to be as good as those of abdominoperineal resection for lesions 6 to 11 cm. from the anal margin.

Including 75 palliative procedures, 1-stage anterior resection was performed on 424 patients. The average age was 59 years. With a single exception, all tumors were adenocarcinomas. Nearly three-fourths were located between 5 and 14 cm. above the anal margin; none were more than 24 cm. above the margin. In the immediate postoperative period, 27 patients died. Complications, mostly minor, occurred in 128 patients; fecal fistula was the commonest.

After six months, sphincteric function was good in 326 of the 397 survivors. Operations intended to be curative produced five- and ten-year survival rates of 61.4 and 49.7%, respectively. The five-year survival rate with nodal metastases was 39.5% as compared with 72.7% in patients without nodal disease. Local recurrence rate three years after operation was 23.5% for lesions less than 10 cm. from the anal margin.

P. KENT CULLEN, JR., M.D., and CHARLES W. MAYO, M.D., Mayo Clinic and Foundation, Rochester, Minn. Dis. Colon Rect. 6:415-421, 1963.

H. D. LEES *Series*

Harry DeWitt Lees, M.D.

Clinician and Educator

J. ARTHUR MYERS, M.D.
Minneapolis

HARRY DEWITT LEES was born on November 23, 1888, at St. Thomas, Ontario, immediately across the river from Niagara Falls. After graduating from high school, he entered the University of Toronto School of Medicine where he was awarded the M.D. degree in June 1910. He promptly entered the Hamilton General Hospital for an internship. He then became resident physician in the Mountain Sanatorium at Hamilton. There Dr. Howard Holbrook made a deep impression upon Dr. Lees concerning the needs and opportunities for physicians in tuberculosis work. Dr. Lees' admiration for Dr. Holbrook continued throughout his life. This is understandable when one reads the biography entitled *Holbrook of the San* by Marjorie Freeman Campbell.

While he was still in this position, Dr. Lees learned of a temporary position in Esmond, North Dakota. The only physician in that village was planning an extended trip to Europe and was seeking a physician to take his practice for that period. Dr. Lees planned to leave Esmond as soon as the physician returned. However, this physician did not return, and Dr. Lees continued there in general practice. He conducted an extensive practice in Esmond and over a considerable radius of the countryside. During the first few years, travel conditions were difficult in the late fall, winter, and early spring.

When Dr. Lees began to practice at Esmond, Dr. W. F. Sihler was well established and was completing a new modern hospital at Devils Lake, which is located 45 miles from Esmond. Dr. Sihler had graduated from McGill University at Montreal in 1898 and had arrived in Grand Harbor, North Dakota, on January 5, 1899, to establish a medical practice. About 1903 he transferred from Grand Harbor to Devils Lake, which then had a population of 1,700 people. He did a great deal of surgery and was a popular consultant among physicians in the villages within a considerable radius. From time to time Dr. Lees took patients to Dr. Sihler for consultation and various surgical procedures.

On numerous occasions in later years Dr. Lees related incidents pertaining to travel conditions on the roads of that general area; he traveled at times on horseback, single horse or team, buggy, or sleigh. In his autobiography, Dr. Sihler describes travel conditions at that time. Snowstorms were so severe and the snow accumulated and resulted in drifts of such height that the roads were impassable at times. Many of the roads were only paths with no guide marks. It was not unusual for the physician to become lost and try to find a farmhouse to make inquiry. This was not easy because houses were widely spaced. Moreover, there were no yard lights, and

This is the first of a group of articles to be published in THE JOURNAL-LANCET *under the title H. D. Lees Series.*

farmers retired at an early hour, after which no light was to be seen through windows. It was not unusual for the physician to become so completely lost that, if he had no compass, after a few turns he had no idea as to which direction he was traveling. When farmhouses were found, farmers usually were courteous and friendly and even joined the physician to direct him to the home where he was to make the sick call. In those days the weather sometimes made travel so difficult that physicians became marooned and were unable to return to their homes and offices for a day or more.

After arriving in Esmond, being unfamiliar with the countryside, Dr. Lees had the liveryman provide transportation and even drive him on some calls in the country during inclement weather, especially during heavy snowfalls when enclosed sleighs were used. He related having been lost in blizzards on several occasions. In due time he purchased an automobile which he used when roads permitted. In the meantime, fine highways were constructed and maintained to eliminate the transportation problems of the earlier days. Even in the days of transportation difficulties, excellent medicine was practiced in North Dakota. High standards have been maintained, and today no better medical care is provided the citizenry anywhere.

Describing his early days at Devils Lake, Dr. Sihler says, "Of course, we had Chautauqua which was a very wonderful thing. It was a regular circuit on which there were fine speakers from all over the country and regular singing troupes and troupes that staged plays." Esmond was on a regular Chautauqua circuit. On July 14, 1916, Miss Mary Willie Pruitt, a member of the Chautauqua circuit, appeared to present the program. Her voice and wonderful selection of songs had caused her to be in great demand on Chautauqua programs and elsewhere. However, when this popular artist appeared, she was under a serious handicap; her pianist had been taken so seriously ill that she was unable to accompany Miss Pruitt. Citizens in charge of local arrangements informed Miss Pruitt that the young physician in Esmond was a fine pianist and also had been soloist in one of the large churches in Toronto during the years of his medical course.

Dr. Lees was promptly contacted, and the Chautauqua program was presented perfectly and on schedule. Dr. Lees and Miss Pruitt were married on December 28, 1916. For the next forty-six years, Dr. Lees and his work were always Mrs. Lees' first concern. She deserves much credit for his accomplishments. Her unsurpassed devotion was abiding and was exhibited to the nth degree throughout Dr. Lees' 2 relatively short periods of illness and his final long period of intense suffering.

In the spring of 1923, Mr. Lloyd B. Dickey, one of our medical students, told me of the many fine qualities of the physician practicing in his hometown, Esmond, North Dakota. He said this doctor had great interest in diseases of the chest, particularly tuberculosis, because, following his internship, he had taken a residency in the Mountain Sanatorium at Hamilton, Ontario. For some time I had been chief of the medical staff at the Parkview Sanatorium on a part-time basis. We had been considering creating a position of chief resident physician at this institution, which was the tuberculosis division of the Minneapolis General Hospital. Therefore, Mr. Dickey was requested to inquire as to whether Dr. Lees might be interested in such a position. Dr. Lees immediately manifested interest and was invited to come to Minneapolis, meet Dr. Walter E. List, superintendent of the Minneapolis General Hospital, and inspect the sanatorium. Soon after this visit the position was created, and Dr. Lees was appointed chief resident physician. He assumed his duties in September 1923, which was a great boon to the institution.

There was a teaching service through which interns and student nurses rotated from the main division of the Minneapolis General Hospital. Dr. Lees was the ideal person for the position because of his training with Dr. Holbrook at Hamilton, Ontario, and his abiding interest in tuberculosis. At once he showed unusual enthusiasm for the work and was promptly the idol of all patients, whom he treated by most modern methods, as well as of members of the nursing staff who still sing his praise. He was an excellent teacher for students of nursing and medical interns. One of the junior interns was Karl W. Anderson of Olympic fame and a superior student. Dr. Anderson has since become senior vice-president and medical director of the Northwestern National Life Insurance Company in Minneapolis and associate clinical professor of medicine at the University of Minnesota. He was invited to contribute a section to this manuscript concerning Dr. Lees as a physician, teacher, and friend. His memorabilia follows: "I have always been intrigued with the fact that the seemingly small decisions which are made in the normal course of a day so often bring almost unexpectedly rewarding results. Probably these routine decisions largely determine the degree of happiness and success for the day.

"Surely this is true in the world of medicine and health. Small habits one acquires lead almost instinctively each day to certain decisions, and the mental attitude that these small decisions generate has a great deal to do with one's well-being. Such things as proper food, air, and exercise all call for decisions continuously. If they are proper decisions usually the individual enjoys a certain degree of happiness. One's health and one's future success, to say nothing of the people with whom one comes into contact each day, are affected.

"One such seemingly small decision I recall making one day in 1923 while sitting in the staff room at the University of Minnesota Hospitals. The problem of the moment was where we should take our junior internship. Quite casually Jack Urner stated he was going to Parkview Sanatorium. I was impressed by this because Jack Urner was one of the top men in our class. He was one of the more mature men. We thoroughly respected his judgment. I knew that he must have a particular reason for deciding to go to Parkview Sanatorium.

"On further inquiry, he then told me that he had become acquainted with a Dr. H. D. Lees who was the new medical director of the Parkview Sanatorium. He was impressed with Dr. Lees as a teacher, clinician, and humanitarian. Further, Dr. Lees had been in private practice in the Dakotas and probably, therefore, could teach not only the fundamentals relating to tuberculosis and chest disease but practical facts concerning the handling of patients, something which at that time was often overlooked in teaching medical students. This struck me as such a logical conclusion that, without further ado, I also put in my application to take part of my junior internship at Parkview. This was the tuberculosis sanatorium for all indigent patients registered with Minneapolis General Hospital and was located out in the country. Jack Urner mentioned that the 3 of us would probably have complete control of the patients there because the staff men rarely came out. In that day of primitive transportation it was too far away for any commuting.

"As soon as we moved into Parkview Sanatorium we were invited to become acquainted with Dr. Lees. He had that rare faculty for making even a student at ease in his office. He immediately launched into a discussion of chest diseases and outlined what he hoped to have us accomplish for the patients during our stay at Parkview. I was quite impressed that he would take the time to discuss the specific care of the patient with 2 junior interns and that he personally would counsel us. It was important for us to do the right thing and make the right decisions.

"In our interview, he impressed upon us that, although these were all indigent tuberculous and chest patients, he regarded it as enormously important for these people to have the feeling that they were getting better. To help them achieve this outlook, they were to be given personal attention to a degree that would help them permanently forget that they were indigent. We would then be able to get the illness controlled and the patients back on their feet more quickly so they could resume normal living activity, be able to support themselves, and be assets of the communities where they lived.

"We would have regular seminars, just the 3 of us. Occasionally a staff man would come out from the Twin Cities, but to a large extent we were alone. The use of pneumothorax for treatment was just being offered and accepted in some places. However, we did not attempt it during my stay, although Dr. Lees was seriously considering it and had brought it up in his discussion. Rest, treating the symptoms, isolation, and emphasis on the art of medicine constituted the treatment of the day. The art of medicine was extremely important because those people invariably became discouraged about the length of time the treatment entailed.

"Dr. Lees was remarkably perceptive in encouraging his patients and teaching his interns to reflect a happy, cheery, optimistic viewpoint when it would have been all too easy to reflect discouragement or impatience over patients who were invariably in the sanatorium for many months.

"With this optimistic viewpoint, we stimulated many of the patients to *want* to get well, instead of assuming it was their fate in life to be bedridden and have no chance of recovery, which was the viewpoint of many tuberculous patients at that time. Chronicity and long stays in the sanatorium were the order of the day, but Dr. Lees was convinced that the larger percentage of these cases could be controlled and the patients rehabilitated. Time has proved that he was right.

"He had one other singular characteristic that stimulated both Jack and myself and that was his insistence that we prove the person really had tuberculosis. There were many patients at that time in whom tubercle bacilli were difficult to find and correctly so because there were many instances of misdiagnosis. This was at a time when many of us thought that anyone who had a cough or was losing weight was tuberculous. Under Dr. Lees' inquisitive direction, many patients were proved not to have tuberculosis at all. Instead, the patient had some other chest condition which, in certain cases, could be corrected; in others it was proved to be cancer of the lung, for example. This was where I saw the first case of cancer of the lung. I don't remember whether he was a smoker, but I do recall that patient and several others who were sent to the sanatorium at that time with the diagnosis of tuberculosis.

"The importance of definitely diagnosing chest diseases was just at that time beginning to be appreciated by doctors. Dr. Lees was forever teaching his interns to consider that there are many conditions which cause chest pathology other than tuberculosis. He was among the first of the diagnosticians to propose this viewpoint. Not only did he insist that we should look at the patient as the potential victim of an ailment other than tuberculosis but he also never let us forget that tuberculosis could affect parts of the body other than the chest.

"Dr. Lees was one of those rare teachers of medicine who was able to stimulate one to greater heights than one may have felt it possible to achieve. In the process, he was not hesitant about purveying a little fatherly advice when he thought it necessary. For example, I was very much of an extrovert during college days and much interested in athletics, probably to the detriment of some of my studies. Dr. Lees, in his quiet, unassuming way, helped me put athletics in proper perspective as far as my training for a career in medicine was concerned. He saw athletics purely as a source of enjoyment and relaxation, but he felt—rightly—that my obligation and road to opportunity lay in giving first priority to the field of medicine. He did much for me, and I think he was one of the main reasons why Jack Urner, in due time, became associate professor of obstetrics and gynecology at the University of Minnesota, a position he held until his untimely death.

"Dr. Lees' enthusiasm for and devotion to medical education probably had something to do with his uncanny faculty for remembering his students by name. Many years after, he would either write to me or send his greetings to me whenever he came into contact with Minneapolis doctors who would be attending various meetings at which he was present. He would inquire of them regarding not only me but many of his other former students. He would ask me from time to time to convey his greetings to them and the hope they were still interested in public health. He was a dedicated man of medicine in his quiet, unassuming way. While his name will not be linked in history with any extraordinary discovery in medicine, nevertheless, he left a wonderful heritage. He was not a doctor with whom large numbers of the public came in contact nor was he written up in popular magazines. Rather, he was the type of doctor on whom much of the steady progress of medicine has been dependent, as all of us who are aware of the mundane work that must be done in medicine will agree.

"Dr. Lees' achievements, both in the science and the art of medicine, entitle him to be classified among such distinguished teachers of that era at the University of Minnesota as Dr. E. T. Bell, Dr. Henry Ulrich, Dr. Richard Scammon, Dr. S. Marx White, Dr. Frank Burch, and Dr. Hilding Berglund. They taught in that now distant and seemingly primitive era before the advent of the wonder drugs and miraculous curative surgery that is now available. How fortunate we students were to be associated with men of this caliber for our undergraduate work!

"A deep sense of compassion for his fellow human beings, an unending search for hidden truths and better methods, and the capacity and patience to motivate the students under his tutelage to do a continuously better job—these are the qualities which enabled Dr. Lees to leave the world a better place than he found it. What more fitting epilogue to our earthly efforts could any of us aspire to?"

Soon after the work at Parkview Sanatorium was well under way, Dr. Lees was appointed to the staff of the Lymanhurst Hospital, school and clinic for tuberculous children. The members of that staff worked without financial remuneration, each one devoting from a few to many hours to the children each week and attending 2 special staff-meeting dinners per month. Dr. Lees was an exceedingly valuable member of the staff because of his extensive experience with children during the previous twelve years in general practice in North Dakota. He worked enthusiastically on this staff as long as he remained in Minnesota.

At Parkview Sanatorium, Dr. Lees' work and popularity among patients, students, and coworkers became generally known, and he was offered a position as physician at the Student Health Service and instructor in preventive medicine and public health, University of Minnesota. He began work there on July 1, 1924; he manifested unusual interest in all aspects of the health of students and faculty who applied to the health service. He was also exceedingly popular among the students whom he taught in the schools of nursing and medicine. His interest in tuberculosis continued. At that time this disease was prevalent among both students and faculty. Dr. Lees became deeply interested in the tuberculin test in order to locate all persons who were haboring tubercle bacilli regardless of their apparent state of excellent health. He strongly supported the plan of having all students entering the university tested with tuberculin with immediate and periodic x-ray films of the chests of those who reacted and periodic tuberculin testing of those who entered as nonreactors. This project was initiated with the class that entered in the fall of 1928 and has since been in vogue. The next year students of medicine who entered the university as reactors to tuberculin also had x-ray inspection of the chest. This was later extended to all students entering the University of Minnesota. He was soon promoted to the rank of assistant professor in the department of preventive medicine and public health and assistant director of the Student Health Service.

In the spring of 1931, he was tendered the position of director of the Student Health Service and associate professor of hygiene, University of Pennsylvania. That summer he took up his new duties in that institution. In addition to the usual full-time nursing and medical staffs he promptly organized a staff of part-time experts in the various specialties of medicine and surgery including such physicians as David Cooper, Harold Palmer, and Donald Hastings. Therefore, he was prepared to provide students with excellent medical service.

Tuberculosis, which was an exceedingly serious problem among students, received his special attention. Being director of the health service, he promptly established the ideal procedures, namely, administration of the tuberculin test to all entering students, x-ray films of the chest of reactors, and prompt differential diagnostic procedures for those who had demonstrable lesions. Other phases of examination were adequate for those who had extrathoracic disease. He had seen the hazard of taking several months or even the rest of the year to have roentgenograms made of the chests of all who reacted to the tuberculin test.

The first rapid method of making x-ray films of chests in the world had just been developed by Powers Chemco Incorporated, a leader in the photoengraving industry, a branch of which later became the Powers X-ray Service, the founders of mass chest radiography. In 1934, Dr. Lees contacted this organization and made an arrangement whereby, as soon as the tuberculin tests of the entering students were read, this company moved in with a special unit; within a period of two weeks, x-ray films of the chests of all the reactors had been produced and interpreted. Thus, those students who had clinical lesions on admission to school were promptly discovered, and appropriate action was taken. This procedure was conducted on each entering class thereafter. In the School of Medicine, x-ray films were made of the chests of tuberculin reactors periodically throughout the entire course.

The rapid method of making x-ray films was introduced to the world by Powers at Glen Cove, New York; the fact that these films on paper base were produced at such low cost greatly appealed to Dr. Lees. He became so adept at interpreting roentgenograms that the Powers X-ray Service chose him as an official reader of survey films. In fact, between 1934 and his last illness he had prepared reports on approximately 130,000 films. Although these had been made primarily for the detection of clinical pulmonary tuberculosis, he saw various other chest disease conditions. He was very proficient in diagnosis and treatment of chest conditions which were present when students entered the university and those which developed while they were in school. He insisted upon prompt and adequate treatment when lesions were discovered.

Dr. Lees' twelve years in general practice qualified him especially for student health service work as well as teaching. His ability as a clinician and teacher is brought out admirably by Dr. Anderson in this paper.

In 1935, he was appointed to membership on the original Committee on Tuberculosis of the American School Health Association. He remained an active member of that committee for the remainder of his life, and among other activities he aided in preparation of 27 annual reports. He was a member of the Committee on Tuberculosis of the American Student Health Association (now American College Health Association) from 1933 to 1945 and chairman of this committee from 1943 to 1945. He prepared 3 excellent annual reports of the committee for publication. In 1947, he was elected to the presidency of the American Student Health Association. He was a member of the board of directors of the Montgomery County, Pennsylvania Tuberculosis Society and the Pennsylvania State Tuberculosis Society for many years. While at the University of Minnesota, Dr. Lees published a number of articles, and he continued to contribute to the literature while at the University of Pennsylvania. In 1939, he was promoted to an associate professorship of public health and preventive medicine in addition to the directorship of the Student Health Service.

By 1951, his work in tuberculosis control among students in professional schools had become so widely and favorably known that the American Medical Association invited him to present a manuscript under the title of "Tuberculosis in Medical Students and Nurses" at its hundredth annual session in Atlantic City on June 13, 1951.

At our first meeting in 1923, I was most favorably impressed with Dr. Lees. He was straightforward in all of our conversations, serious, especially well informed, and appeared to have all of the qualities of an ideal physician. As time passed, a close friendship which continued over the next forty years developed between our families. We were together weekly or more often on social occasions until Dr. and Mrs. Lees moved to Philadelphia. Thereafter, we had the pleasure of visiting their Philadelphia home on a number of occasions and met in New York, Washington, Atlantic City, and other eastern cities where medical meetings were held. We were just two days apart in age. Therefore, for years we celebrated our birthdays together on the intermediate day. Our last birthday celebration was prematurely held in Philadelphia on the evening of October 16, 1960.

Having reached the official age, Dr. Lees retired from the University of Pennsylvania in June 1954. For approximately twenty years he had diabetes which was kept well under control by standard procedures. About fifteen years ago he had a coronary attack which was treated successfully with no recurrence. Beginning in about 1960, he suffered considerable abdominal pain. Laparotomy was performed on June 12, 1962, and he died from carcinoma of the colon on November 5, 1962.

Dr. Lees was one of the early health service physicians in the United States; he received his first appointment in 1924 and carried on continuously for thirty years. He was appointed and elected to chairmanships of various committees and finally to the presidency of the American Student Health Association (now American College Health Association).

Dr. Robert L. Mayock, chief of pulmonary disease section, department of medicine, of the University of Pennsylvania Hospital, pays him the following tribute:

"My first contact with Harry D. Lees was at the 1938 medical school physical examination during my freshman year at the University of Pennsylvania. Even to the neophyte he was obviously the director of the Student Health Service since he carefully watched each phase of the examination. From then until I attended him in his final illness, all of my associations were stimulating, informative, and full of warmth. He was highly respected as a man of excellent training and unwavering principles by the students, the faculty, and the physicians of the health service.

"The next contact of note with Harry Lees was in my senior year of medical school when he had the duty of informing me that I had an x-ray change that appeared to be pulmonary tuberculosis. The understanding and patience that he gave to the task of convincing me of the diagnosis and of the need for treatment made acceptance on my part much easier. When I had to tell my own patients of their diagnoses, as I have had to do so often, I have hoped that I was as humane and effective as he.

"I remained Dr. Lees' patient through one year of bed rest and until his retirement in 1954. Following the year of bed rest I was able to return to internship and residency under his guidance. After my training, I worked part-time at the Student Health Service under his supervision, as did so many of the younger staff of the hospital of the University of Pennsylvania. He always sought to find financial support for the beginning clinician and will be long remembered for this help by internists, surgeons, and men in the other subspecialties.

"The complete evaluation of the patient, even on routine examination, was stressed by Dr. Lees. As a result of this meticulousness, the records of the medical students of the University of Pennsylvania, along with those of Harvard University, were recently selected for a 20- to 30-year follow-up study by the United States Public Health Service. This selection was on the basis of their completeness and detail, another tribute to Harry Lees. The tuberculosis detection and control program for the University of Pennsylvania medical students was unrivaled, and it is due to this program that so many of us owe our present health. Partly because of the example set by Harry Lees, I decided on a subspecialty in pulmonary disease following my training in internal medicine.

"The personal quality that I admired most in Harry Lees was his forthrightness. He spoke his mind strongly and with only the reservation of kindliness. You always were made aware of his reaction to each situation, and this reaction was based on careful reasoning. During his last illness, Harry Lees faced his fate and the attendant problems with true equanimity and without complaint. His passing was a personal loss to all of us at Pennsylvania who had come to love and admire him through the years."

Many readers of The Journal-Lancet have had, or will have, children or grandchildren in colleges and universities with considerable interest in the health services provided for students in these institutions. Therefore, we have invited directors and others of college health services from various parts of the nation to prepare manuscripts which will appear in THE JOURNAL-LANCET from time to time under the title of the "H. D. Lees Series." Manuscripts from other health service physicians on medical or surgical subjects will be welcome.

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THE RISK of coronary heart disease steadily increases as serum cholesterol concentration rises. Among 281 men examined regularly since 1948, coronary heart disease developed in 32, of whom 28 had serum cholesterol values greater than 200 mg. percent. The incidence of the disease was higher among persons above the median in relative weight, body fatness, and blood pressure, but serum cholesterol was the only statistically important factor and was not significantly related to the other variables.

ANCEL KEYS, PH.D., HENRY LONGSTREET TAYLOR, PH.D., HENRY BLACKBURN, M.D., JOSEF BROZEK, PH.D., JOSEPH T. ANDERSON, PH.D., and ERNST SIMONSON, M.D., University of Minnesota, Minneapolis. Circulation 28:381-395, 1963.

THE HEPATIC ARTERIAL SYSTEM is increased in prominence and the portal venous bed within the liver reduced in size in both portal and postnecrotic cirrhosis. Prominence of the arterial vasculature results from enlargement of individual branches and from increased numbers of arterial branches accompanying each portal vein radical. The concomitant reduction in size of the portal venous bed is due partially to compression by encroachment of regenerating nodules and contributes to the altered arteriovenous ratio. Degree of alteration usually coincides with severity of the cirrhotic process. Vascular distortion is more pronounced in coarsely nodular postnecrotic cirrhosis than in portal cirrhosis. Compression of the smaller and, to a lesser degree, the larger portal and hepatic venous branches usually accompanies both types of cirrhosis. Hepatic vasculature was studied by postmortem injection techniques in 9 normal livers, 1 fatty liver, 7 with portal cirrhosis, and 3 with postnecrotic cirrhosis.

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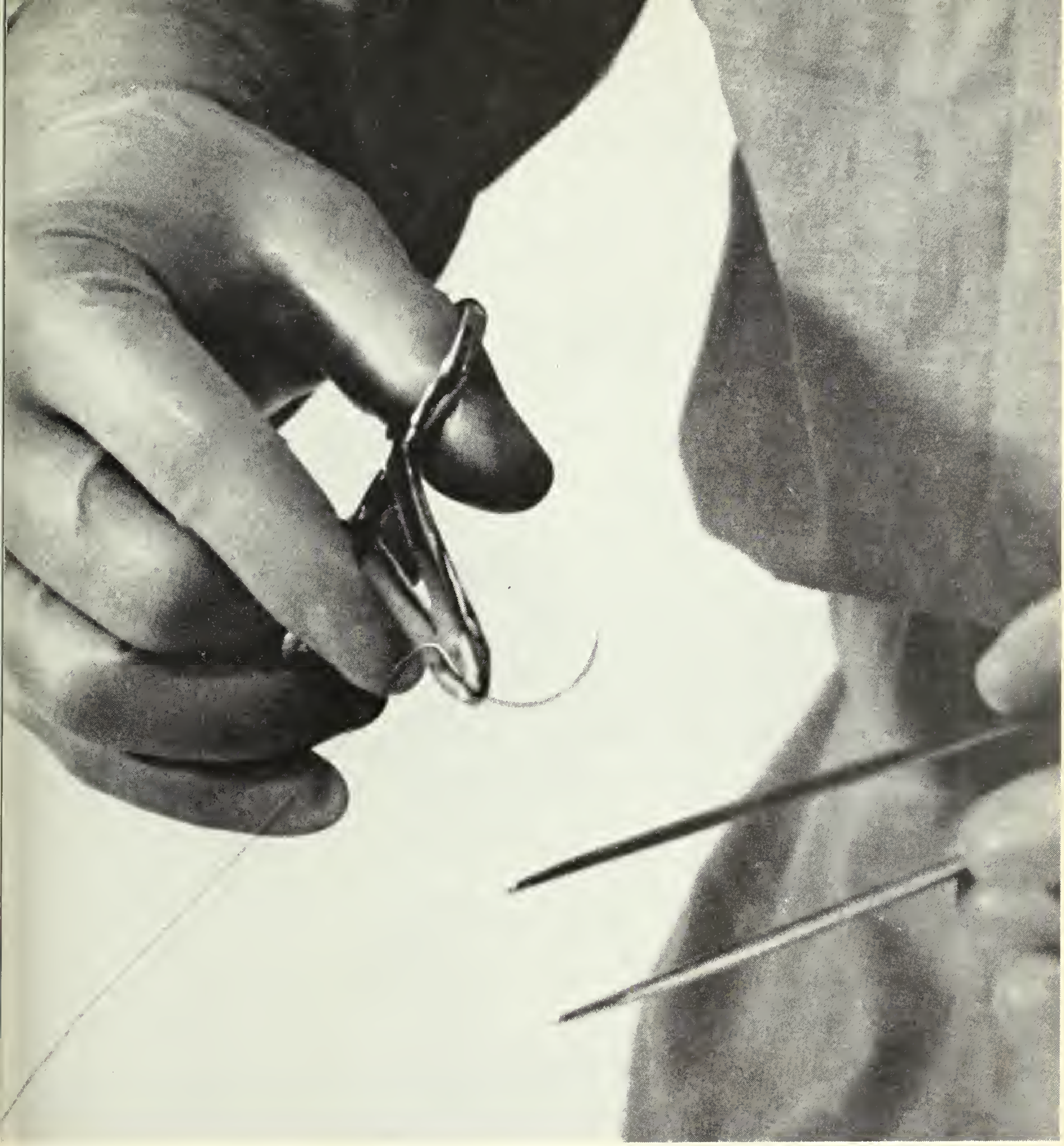

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Book Reviews . . .

Paterson's Sick Children — Diagnosis and Treatment

by REGINALD LIGHTWOOD, *and* F. S. W. BRIMBLECOMBE, *8th ed., 724 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $10*

The publishers describe this textbook of pediatrics as "a compact manual which has been popular with pediatricians for over 18 years." After reviewing the book I would say that its popularity is well merited. Adequately covering all aspects of pediatrics, it is larger and more complete than other manuals except *Nelson's Textbook of Pediatrics.*

There are several features which make this book different from others of its kind. Authored by English pediatricians, it demonstrates the differences between terminology and feeding practices in Britain and the United States. For example, a section on convulsions is entitled "Fits and Faints." Infant feedings are called "feeds." Solid foods are started at 5 to 6 months of age in the United Kingdom, although "this is an arbitrary choice and infants will do well on milk alone until about the 9th month." This is at variance with infant feeding practices in this country where solids are begun at 2 to 3 months of age, and in some cases as early as 3 weeks. Infant foods and brand names are peculiar to the country. For example: Cow and Gate Cereal Food, Forex, Benger's Food, and bone and vegetable broth. However, Pablum, a Mead-Johnson product, and Heinz baby foods are among the recommended foods.

Having mentioned some of the distinctive British features of the book, I hasten to state that it is complete and concise. It contains the most recent knowledge concerning all phases of pediatrics. The chapter on genetics has the clearest explanation of genes and their abnormalities thus far encountered by this reviewer. Useful and technical data concerning fluids and electrolytes are clearly delineated. All the numerous tables are quickly readable. Seven appendixes furnish quick, practical information concerning "sulphonamides" and antibiotics, corsticosteroids, dosage of other drugs in childhood, electrolytes of body fluids, normal values for physical development, and special diets including gluten-free diet and phenylalanine content of foods. Appendix No. 7 describes legislation concerning children in the United Kingdom.

In all this is a worthwhile reference book. Its British viewpoint results in only minor differences from its American counterparts, and in no way detracts from its value.

L. G. PRAY, M.D.
Fargo

Anesthesia for Surgery of the Heart

by KENNETH K. KEOWN, *2nd ed., 206 pp., ill., Charles C Thomas, Springfield, Ill., 1963. $7.75*

There has been considerable revision of Dr. Keown's *Anesthesia for Surgery of the Heart* between the first and second editions of the book. The addition of an index in the present edition makes the volume more useful. The placement of a chapter on "Radiologic Contributions of the Diagnosis of Heart Disease" by Theodore E. Keats, is questioned in an anesthesiology text. The section on "The Use of the Pump Oxygenator" by Emerson A. Moffitt and Richard A. Theye, is of considerable use. In this chapter the detailed use of the pump oxygenator, as it influences and pertains to the anesthetic management, is readily explained.

A most outstanding improvement between the first and second edition is the chapter on "Cardiac Catheterization," by Jack M. Martt. Here the information is concisely presented and the bold lined diagrams of each cardiac abnormality with catheterization findings are expressed most lucidly.

The actual content in those chapters dealing with the anesthetic measurement of patients has changed but little. The major methods and techniques are expressed in a patronizing and conservative manner. There is considerable repetition among the various chapters, but this may be desirable when one bears in mind that this monogram is written primarily for medical students and residents in anesthesiology.

The text is well written and easy to read.

IRVING GREENFIELD, M.D.
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The Physical Dimensions of Consciousness

by EDWARD G. BORING, *2nd ed., 251 pp., ill. Dover Publications, Inc., New York City, 1963. $1.75*

First published in 1932, Dr. Boring's *The Physical Dimensions of Consciousness* soon established itself as one of the basic "handbooks" in the then-young science of psychology. The fact that a second edition appears thirty years later is perhaps in itself sufficient recommendation to the potential reader of this book. Written at a time when Dr. Titchener's introspectionism had reached its zenith, the book early achieved significance as an effective effort of a psychologist to refute the fundamental tenets of dualism. Although trained in the dualistic psychology of Titchener, Dr. Boring never really subscribed to the idea that existential consciousness was the proper subject matter for scientific psychology. Beyond elucidating the "dimensions" identified in the title, this book paved the way on a philosophical plane for subsequent scientific treatment of the physiologic correlates of human thought. The author's entire scientific attitude toward human behavior can best and most simply be identified in the statement "whatever exists as reality for psychology is a product of inductive inference." Dr. Boring developed a psychology of relations. To him, the simple fact in psychology was a correlation of a dependent variable upon an independent one.

The frequent and almost casual references to the accomplishments of such great men as Drs. Lashley, Kohler, Skinner, and Titchener give the reader an excellent overview of the current status of psychology in the United States in 1930.

The core content of the book does an excellent job of explaining such psychophysiological problems as mind and body dualism and the actual dimensions of consciousness. Chapters are devoted to these specific dimensions (intensity, extensity, time, and quality).

The author meets his core problem of inductive inference head on when he states that "In all experimental observations, physical or introspective, one is working

(Continued on page 18A)

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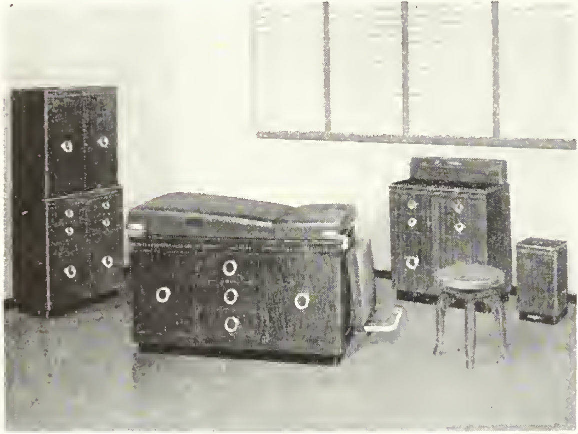

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(Continued from page 14A)

with realities by way of their symbols. One never comes really to grips with that in which one is primarily interested." He assumes throughout the book that it is scientifically more useful to consider all psychological data as the same kind and that consciousness is a physiological event.

Dr. Boring's chapter on time (protensity) as a dimension of consciousness is an essay that could well stand by itself. Integrating many of the ideas of Wundt and Mach of the 19th century, he deals masterfully with the paradox: Can one observe a duration? Does one observe it at the beginning, at the middle, or at the end? Can time be observed at all? His attempt to solve this dilemma in itself makes the book worth reading.

One mechanical aspect of the book is worthy of note. At the end of each chapter appear "notes" which contain many references to more detailed analyses of the chapter presentations. This makes the book of value to individuals on many different levels of professional development and interest.

The book is a must for any individual dealing professionally with problems of human behavior. It assumes no detailed background in psychology, and there are no frightening polysyllabic words to confuse the nonpsychologist reader. Incidentally, if you read the book in its first edition, I would urge you to read it a second time. I found the second reading much more profitable and enlightening than the first.

WENDELL M. SWENSON, PH.D.
Rochester, Minnesota

'Astounding Statement' a Quotation

To the Editor:

In his review of my book entitled *Living with Epileptic Seizures*, Charles C Thomas, Springfield, Ill., 1963, Dr. Walter C. Alvarez made the following statement: "An astounding statement is found on page 289, where the author says, 'We believe that most epileptics who wish to marry and rear children should be encouraged to do so!' "

This is a gross error which I would like to rectify. The above quoted statement was taken out of context from a section of my book which reads as follows:

> "The following are the attitudes of some other physicians who have had considerable experience with epilepsy.
>
> LENNOX (*Epilepsy and Related Disorders*. 1960, page 574): 'Many considerations enter into the question of marriage. We believe that most epileptics who wish to marry and rear children should be encouraged to do so.' "

Actually Dr. Alvarez should have stated that he was astounded at Dr. Lennox's opinion that "most epileptics who wish to marry and rear children should be encouraged to do so." It seems quite obvious to me that the reader of my book (pages 288-289) should very clearly understand that the statement which astounded Dr. Alvarez was an expression of the late eminent epileptologist, Dr. William G. Lennox, as it appeared in his book published in 1960. However, in spite of this gross error by Dr. Alvarez, I would like to take this opportunity to emphatically state that I am very proud to be in wholehearted agreement with the attitude which Dr. Lennox expressed relative to marriage and children for epileptics.

SAMUEL LIVINGSTON, M.D.
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News Briefs . . .

North Dakota

DR. WILLIS H. MARSHALL, JR., has transferred from the Ft. Totten clinic to Rapid City, S.D. He had served two years as medical officer at Ft. Totten under the Bureau of Indian Affairs.

° ° ° °

DR. LEON A. BJERKE, physician for three years at Hawley, Minn., has joined the staff of the Red River Valley Clinic in Wahpeton. He took undergraduate work at the University of North Dakota and Concordia College and is a 1960 graduate of the University of Nebraska Medical School.

° ° ° °

DR. WILLIAM L. POTTS has been appointed superintendent of the state tuberculosis sanitorium at San Haven; he succeeds Dr. Angel R. Cuadrado who resigned to accept a similar post at Oakdale, Iowa. A native of Beaver Falls, Pa., Dr. Potts has been associated with a private sanitorium in Florida. He will be in charge of 24 tuberculous and 144 mentally retarded patients at San Haven.

° ° ° °

DR. KEITH G. VANDERGON of Grand Forks was appointed to the North Dakota state board of medical examiners, and Drs. Frank D. Naegeli of Minot and Robert F. Nuessle of Bismarck were reappointed. All terms are for three years.

° ° ° °

DR. PERCY L. OWENS, Bismarck, has been elected chairman of the 9-member North Dakota state health council for fiscal 1965 .

° ° ° °

DR. C. J. MATTSON, a native of North Dakota, has assumed the practice of Dr. Jerrold A. Munro at the Guenther Memorial Clinic, Rolla, while Dr. Munro attends a six-month neurology and psychiatry course at the University of Nebraska. The doctors plan to be affiliated on Dr. Munro's return. Dr. Mattson took undergraduate work at Jamestown College and the University of North Dakota, received his M.D. degree at the University of Wisconsin, and is a member of the American Academy of General Practice.

° ° ° °

DRS. RICHARD W. FARDAL and ARTHUR E. VAN VRANKEN have joined the staff of the Quain and Ramstad Clinic in Bismarck. Dr. Fardal recently completed a three-year residency in dermatology at the Mayo Clinic and Foundation, Rochester, Minn. He is a graduate of the University of Minnesota Medical School. Dr. Van Vranken graduated from the University of Kansas School of Medicine and interned at St. Luke's Methodist Hospital, Cedar Rapids, Iowa. He served for two years with the U.S. Public Health Service as a heart disease control officer in North Dakota before joining the Quain and Ramstad department of general practice.

° ° ° °

THE 26TH ANNUAL MEETING of the North Dakota Society of Obstetrics and Gynecology will be held Sept. 11 and 12 at the Town House Motel, Fargo. The opening day scientific session beginning at 1 p.m. includes: "Two Case Reports: Cervical Pregnancy; Placenta Praevia Accreta" by Dr. J. E. Cleary of Bismarck; "Teratologic Effects of Drugs and Viruses" by Dr. Stewart Fish of the

University of Arkansas Medical School; "Transabdominal Amniocentesis in the Study of RH Incompatibilities" by Dr. John M. Keller of the Geisinger Medical Center, Danville, Pa.; "Control of Blood Loss During Gynecologic Surgery" by Dr. Thomas Dillon of Cornell University Medical College; "Maternal Mortality in North Dakota" by Dr. Blaine Amidon of Fargo, society president; "Cancer of the Cervix in Young Women," the Leonard Larson Lecture, by Dr. James Henry Ferguson, chairman of the department of obstetrics and gynecology of the University of Miami Medical School; and a round table discussion moderated by Drs. Ferguson, Fish, and Dillon. The papers on Sept. 12 include: a case report by Dr. Richard H. Leigh of Grand Forks; "Induction and Stimulation of Labor with Transbuccal Pitocin," the James F. Hanna Memorial Lecture, by Dr. Dillon; "Placental Marginal Sinus Rupture" by Dr. Ferguson; "Problems of Artificial Insemination from a Private Practice Standpoint" by Dr. Fish; and a round table discussion led by Drs. Ferguson, Fish, and Dillon. The two-day meeting is open to all interested area doctors.

* * * *

DR. JEROME P. HAGER of Hankinson announced the closing of the clinic in that community June 18. He said it was hoped another doctor would move to Hankinson this summer.

* * * *

DR. DUANE D. GLASNER, a native of Parshall, N.D., has joined Dr. Allen R. Neuenschwander of the Rolla Clinic as a general practitioner. He completed two years with the U.S. Public Health Service on the staff of the Federal Correctional Institution, Sandstone, Minn. A graduate of the University of Wisconsin Medical School, Dr. Glasner interned at the Allentown Hospital, Allentown, Pa., before joining the U.S. Public Health Service.

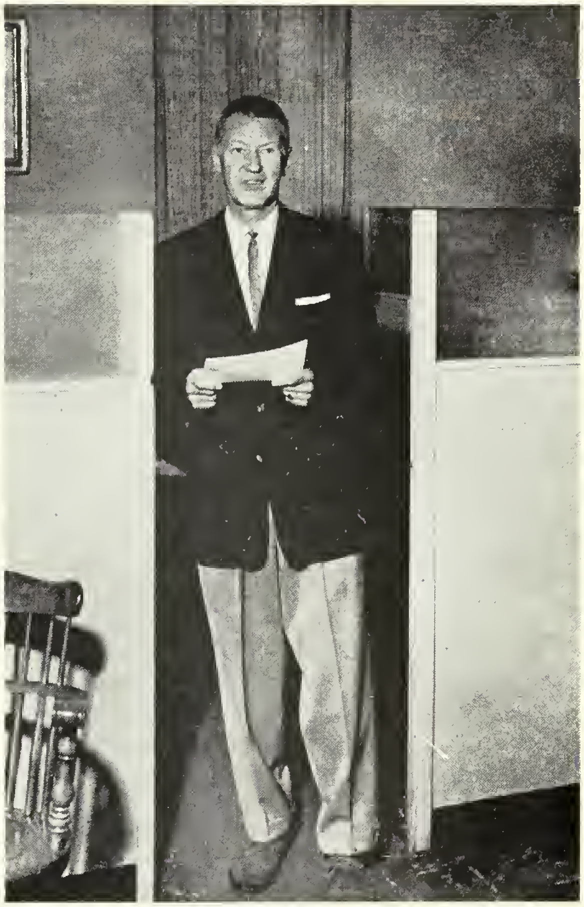
Minnesota

The 16th Postgraduate Assembly of the Endocrine Society will be held at the Mayo Clinic, Rochester, as part of the centennial celebration of the Mayo Clinic–Mayo Foundation, from Oct. 5 through Oct. 9. The general chairman is Dr. J. C. Beck, Royal Victoria Hospital, Montreal. The local chairman is Dr. Edward H. Rynearson, Mayo Clinic, Rochester, Minn. 55901. Registration fee is $100. Registration will be limited to 250. The program is available now. Inquiries and registration fees should be addressed to Dr. E. H. Rynearson.

* * * *

DR. CLARENCE A. SMITH, 53, assistant surgeon general with the United States Public Health Service in Washington, D. C., has been named Minneapolis commissioner of health. He will succeed Dr. Karl R. Lundeberg who retires in September. Dr. Smith received his M.D. degree from the University of Colorado in 1935 and a master of public health from the Johns Hopkins School of Public Health in 1939. Before his present post, he was chief of the Public Health Service Communicable Disease Center, Atlanta, Ga. Dr. Smith also has served as chief of the Public Health Service Venereal Disease Program and assistant professor of tropical medicine and public health at Tulane University in New Orleans.

(Continued on page 22A)



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NEWS BRIEFS

(Continued from page 21A)

FOUR EXHIBITS prepared by Minnesota doctors won awards at the American Medical Association annual meeting in San Francisco. The Hektoen Gold Medal—top prize for exhibits of original investigation—was awarded to Drs. Richard C. Lillehei, Jerold K. Longerbeam, Jack H. Bloch, Zwi Eyal, and William Manax of the University of Minnesota. Their exhibit on treatment of endotoxin shock presented a technique of dilating vessels to improve circulation and obtain better tissue perfusion. A doctor of dental surgery and director of the Mayo Medical Museum, Dr. Arthur H. Bulbulian, received the Billings Gold Medal for an exhibit, "Maxillofacial Prosthetics: Its Origin and Present Status." A certificate of merit for the exhibit, "Extrapulmonary Manifestations of Bronchogenic Tumors," was awarded to Mayo Drs. Howard A. Andersen, Robert S. Fontana, Philip E. Bernatz, and Lewis B. Woolner. Mayo Drs. Richard M. Steinhilber, Maurice J. Martin, and Herbert W. Peterson, Jr., also received a certificate of merit for their exhibit, "Emotional States That Are Caused by Unsuspected Organic Diseases."

* * * *

THE GERONTOLOGICAL SOCIETY's seventeenth annual meeting will be held at the Leamington Hotel, Minneapolis, Oct. 29 to 31, with eighteen hours of "I" accreditation for postgraduation study awarded by the American Academy of General Practice to members who attend. A team from the University of Minnesota and Veterans Administration Hospital, Minneapolis, will present 1 of 3 symposiums: "Transplants and Age." This symposium will focus on the effect of age in the expanding transplantation field. Another highlight will be the symposium, "Endocrines and Aging," chaired by Dr. Leo Gitman of New York City, society president. The third symposium, "Twenty-First Century Vistas," will be presented by 4 speakers, including Dr. Torben Geill of Copenhagen, Denmark, president of the International Association of Gerontology. Diagnosis, treatment, and management of the geriatric patient will be presented during sessions of the clinical medicine section, including papers on "Effect of Age on Sensitivity to Insulin," "Recovery after Cerebral Infarction in the Aged," "Chemotherapy of Breast Carcinoma," "Training Psychiatric Residents in Geriatric Psychiatry," and "Lens and Age" (changes with cataract). Dr. Otto H. Schmitt, University of Minnesota professor of biophysics, will be banquet speaker Friday evening, Oct. 30; he will talk on "Biophysics, Instrumentation, and Aging." A trip to the Mayo Clinic in Rochester is planned for Saturday afternoon. Registration fee of $7 for the three-day meeting includes program and abstracts. The Friday banquet cost of $6.50 also covers a 6 p.m. reception. Recommended early registration may be made by writing to: Ernst Simonson, M.D., Laboratory of Physiological Hygiene, Stadium Gate 27, University of Minnesota, Minneapolis, Minn. 55455.

* * * *

DR. WILLIAM R. HILGEDICK has left his general practice in Two Harbors and now is associated with Dr. Keith B. Deason in Chisago City. He practiced in Two Harbors in 1956-57 and for the past four years.

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DR. WILLIAM L. BENEDICT of Rochester has been awarded the Lucien Howe Medal, highest award given by the American Ophthalmological Society to a member. Dr. Benedict is emeritus member of the Mayo Clinic staff and executive secretary of the American Academy of Ophthalmology and Otolaryngology. He headed the clinic's section of ophthalmology from 1917 to 1950.

* * * *

DR. HERBERT W. SCHMIDT has been named associate medical director of the Minnesota Mining and Manufacturing Company, working with Dr. William F. Hartfiel, medical director. A graduate of the University of Minnesota Medical School, Dr. Schmidt joined the Mayo Clinic in 1937 where he has been a senior consultant and former head of an internal medicine section.

* * * *

JAMES R. BLOEDEL, a University of Minnesota medical student, has received a fellowship from the Life Insurance Medical Research Fund for up to six years of postgraduate study. An $11,000 grant from the same fund has been awarded to St. Barnabas Hospital, Minneapolis, for blood research by Dr. Laurence O. Pilgeram of suburban Minneapolis.

* * * *

DR. JEROME L. KREMER has joined the staff of the Chippewa Clinic in Montevideo, following internship at the Charles T. Miller Hospital, Children's Hospital, and Ancker Hospital in St. Paul. Dr. Kremer was born in Wells, Minn., took undergraduate work at the University of Minnesota, and received his M.D. degree from Marquette University, Milwaukee.

* * * *

DR. LEONARD H. BLACKWELL of Glencoe has assumed the practice of Dr. Charles G. Sheppard in Hutchinson. He has been associated with the Glencoe Medical Clinic for a year as surgeon and general practitioner. A 1950 graduate of Wayne State University College of Medicine, Detroit, he interned and practiced in Pontiac, Mich. and took postgraduate surgical training in Canada and at the Veterans Administration Hospital, Iowa City, Iowa. Dr. Sheppard has accepted a position with the St. Peter State Hospital.

South Dakota

DR. RUSSELL H. HARRIS, a surgeon, has joined the Rapid City Medical Center. He was born in Watertown, took undergraduate work at the University of South Dakota, and received his M.D. degree from the Jefferson Medical College of Philadelphia. Dr. Harris interned at Minneapolis General Hospital for one year, completed a five-year surgical residency there, and served for two years as a general surgeon in the Air Force.

* * * *

DR. JOHN C. HAGIN of Miller received a distinguished service award from the South Dakota Medical Association. He was commended for work on the State Board of Charities and Corrections and public service as mayor of Miller.

* * * *

DR. ALAN H. DOMINA, a native Nebraskan, has joined the Tyndall Clinic staff. He graduated from the University

(Continued on page 24A)

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NEWS BRIEFS

(Continued from page 23A)

of Nebraska College of Medicine, interned at the Lincoln General Hospital, and took a one-year surgical residency at the Veterans Hospital, Lincoln.

° ° ° °

DR. THOMAS D. GENSLER has affiliated with Dr. T. A. Angelos of Canton. A native of Ft. Morgan, Colo., Dr. Gensler received his M.D. degree from the University of Nebraska in 1963 and interned at Nebraska Methodist Hospital in Omaha.

Deaths . . .

DR. LEONARD K. BUZZELLE, 63, died June 22. A native of Seattle, he was a 1927 graduate of the University of Minnesota Medical School and lived in Minneapolis for forty-five years. Dr. Buzzelle was a member of the Hennepin County Medical Society, the American College of Surgeons, and the American Medical Association.

° ° ° °

DR. SAMUEL J. HILLIS, 83, died June 27 in Bradenton, Fla. From 1937 to 1948, Dr. Hillis was on the staff of Fairview Hospital, Minneapolis. A 1904 graduate of the University of Toronto Faculty of Medicine, he practiced in Berthold, N.D., before moving to St. Paul and practicing in Minneapolis. Dr. Hillis served in the Army Medical Corps during both world wars.

° ° ° °

DR. ROGER L. PERKINS, 32, a Mayo Foundation fellow in radiology, died of a brain tumor at the State University of Iowa Hospital, Iowa City, June 12. A resident of Ottumwa, Iowa, he became a Mayo fellow in medicine in 1962; he changed to radiology in 1963. Dr. Perkins would have completed his fellowship this summer. He received his M.D. degree from the State University of Iowa in 1957.

° ° ° °

DR. GEORGE J. SLAWIKOWSKI, 31, director of medical education in surgery at the St. Paul Medical Center, St. Paul, Minn., died of cancer June 18. A native of Poland, Dr. Slawikowski received his M.S. and Ph.D. degrees in surgery from the University of Illinois; he also studied at Cambridge University, England, and Edinburgh University, Scotland. He joined the St. Paul staff in February.

° ° ° °

DR. MILTON M. BALCOME, 57, died in his native St. Paul June 20 following a heart attack. He was a University of Minnesota Medical School graduate of 1931 and had practiced in St. Paul since 1932. During World War II, he was a flight surgeon in the Pacific area.

° ° ° °

DR. FREDERICK A. M. OLSON, 80, a member of the founders group of the American Board of Surgery, died July 10 in Pomona, Calif. Born in Wells, Minn., he studied at the University of Minnesota, Rush Medical School of Chicago, and the Mayo Clinic. Dr. Olson practiced in Minneapolis for twenty-five years and was a faculty member of the University of Minnesota Medical School. He moved to Los Angeles in 1942 and to Pomona in 1951; he retired in 1960.

° ° ° °

DR. JUSTIN J. KORWIN, 65, died at his home in Williston, N.D., June 26. Dr. Korwin was born in Chicago, received his M.D. degree from Stritch School of Medicine of Loyola University, Chicago, and practiced in Chicago before moving to Williston in 1939. He was a member of the American Medical Association.

COMING *in* *November*

Articles and features to be found in the next issue of THE JOURNAL-LANCET

The lead article in the November issue of THE JOURNAL-LANCET is a study of bacteremia due to gram-negative bacilli. Drs. William J. Martin and Martin C. McHenry of the Mayo Clinic and Foundation, Rochester, base their study on 303 cases encountered at the Mayo Clinic from 1940 to mid-1961. Included were only those cases in which 2 or more positive blood cultures were obtained and in which clinical examination showed true bacteremia.

The authors report that in approximately two-thirds of the cases the causative organism was coli-aerogenes, the portal of entry was genitourinary, the patients were men, and the age of the patients was 60 years or more.

It was learned that in about half of these cases an operative or manipulative procedure immediately preceded the infection; in about two-thirds of the cases in which such procedures had been employed, the operation or instrumentation had been on the genitourinary tract, and in about one-third of the cases it had been on the gastrointestinal tract.

Although the coli-aerogenes group of organisms remains the most common cause of bacteremia due to gram-negative bacilli, the relative incidence of Pseudomonas bacteremia has increased, apparently because of the propensity of Pseudomonas to invade the blood of victims of terminal neoplastic, hemopoietic, and renal diseases.

Among other articles to appear in November will be:

- **Clinical Significance of the Absent Umbilical Artery,** by Victor J. Magary, M.D., John S. Gillam, M.D., G. Alfred Dodds, M.D., and M. H. Poindexter, M.D., Fargo.
- **Dos and Don'ts for Health Service Physicians,** by A. Kenneth Young, M.D., Albuquerque.
- **Giant-Cell Carcinoma of the Lung,** by B. Oberman, M.D., and Z. Danilovic, M.D., Zagreb, Yugoslavia.
- **Case Report on Unusual Metastatic Spread of Bronchogenic Carcinoma,** by Alan H. Bailey, M.D., Mt. Vernon, Missouri.
- **Tuberculosis and Leprosy,** by Esmond R. Long, M.D., Washington, D.C.
- **Shortness of Breath and Chest Pain,** by Gerald J. Kavanaugh, M.D., Rochester, Minnesota.

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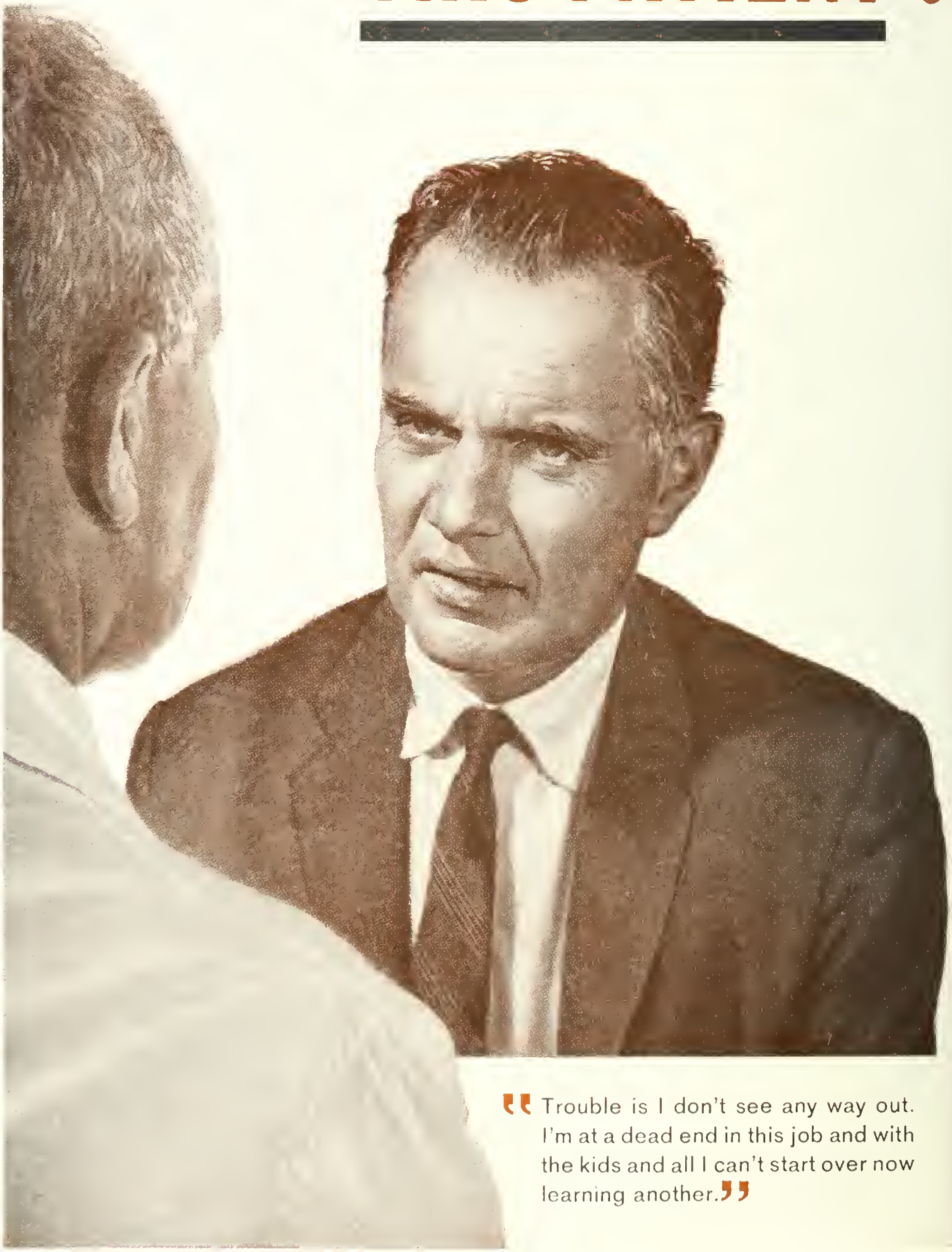

“Trouble is I don’t see any way out. I’m at a dead end in this job and with the kids and all I can’t start over now learning another.”

The Journal-Lancet

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SOUTH DAKOTA, AND MONTANA

Abnormal Fetal Presentations

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I HAVE RECENTLY reviewed the Mayo Clinic experience in the management of transverse fetal presentation and, with Dr. Loren J. Jacobson,* the management of brow and face presentations.[1,2] I should like to present a résumé of this material. First, I will deal with the problem of transverse presentation of the fetus. Figures 1 and 2 show typical examples of transverse presentation, which is said to be present when the long axis of the fetus is oblique or at a right angle to the long axis of the mother. The fetus may be in this position during the prenatal period and may convert spontaneously to vertex presentation before or during early labor. When this presentation persists during labor, it is a dangerous complication with definite risk to both mother and fetus.

In general, 3 methods of delivery have been described: (1) internal podalic version and breech extraction of the fetus, (2) external version of the fetus to breech or vertex position with subsequent vaginal delivery, and (3) cesarean section. Internal podalic version and breech extraction, if done when cervical dilation is complete without cephalopelvic disproportion or abnormal placentation, should be relatively safe for mother and fetus, particularly if the membranes remain intact until delivery is imminent. Such an ideal situation for delivery is not usually encountered or predictable, and prolapse of the fetal cord, hemorrhage, or difficult breech extraction may occur and result in fetal injury or loss and maternal morbidity. External version of the fetus changed to vertex or breech presentation with the use of a properly applied binder after successful version may circumvent the hazard of internal version or difficult breech extraction and allow vaginal delivery in selected patients. Since 1935, the trend has been increasingly toward the use of cesarean section, which has reduced the fetal and maternal mortality rates to lower figures than any previously described method of delivery.

MAYO CLINIC EXPERIENCE

A series of 101 cases of transverse presentation was collected from 32,501 deliveries. This makes the incidence 1 in 322. Multiple pregnancies and cases in which the fetus weighed less than 1,500 gm. were omitted from the study. Table 1 shows the method of delivery used and the fetal loss. Seventy-eight infants survived and 23 died before, during, or after labor and delivery. The overall, uncorrected fetal mortality rate is 23%. Eleven of the 23 fetal deaths could be attributed to a complication of the presentation (Table 2). These complications included cord prolapse in 5, difficult breech delivery in 5, and amnionitis

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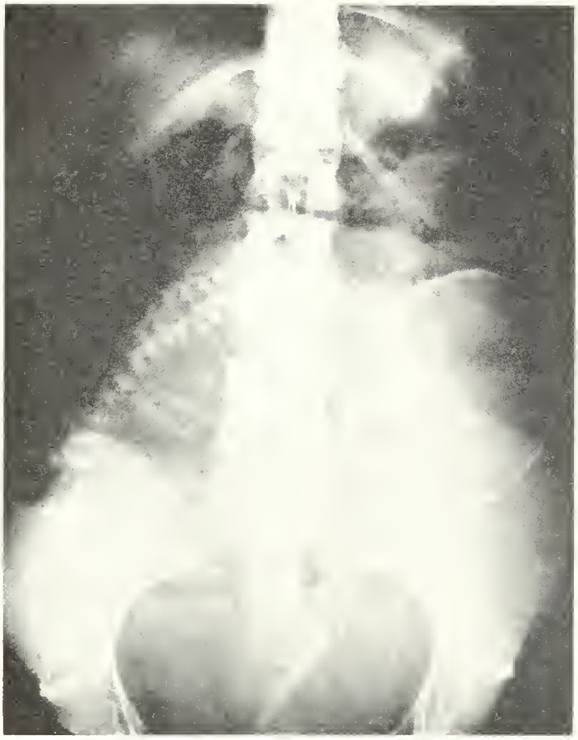
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Fig. 1. Typical transverse presentation[2]

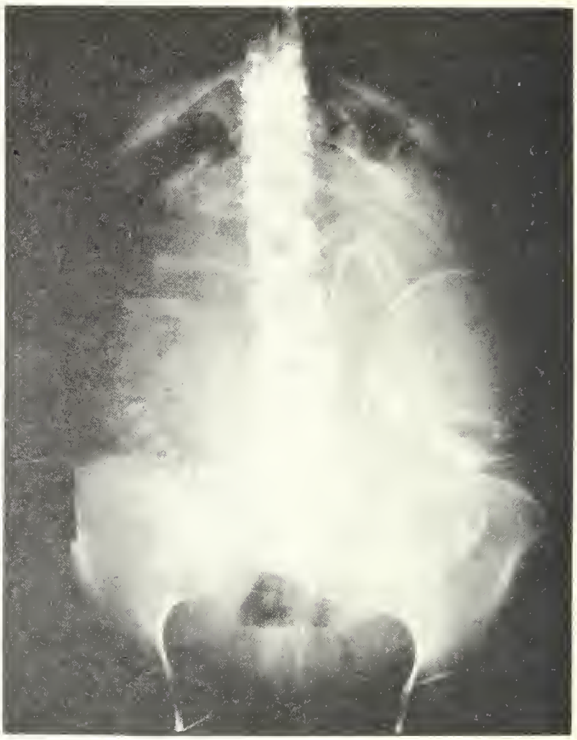
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Fig. 2. Another view of typical transverse presentation[2]

in 1. The overall corrected fetal mortality rate was 11%. Nine of the 11 infants were delivered by internal podalic version and breech extraction.

No fetal death was directly attributable to cesarean section or external version; 7 fetal deaths, however, were attributable to difficult internal version or arrested breech extraction.

The causes of the 12 fetal deaths which could not be attributed to the presentation were as follows: intrauterine death of unknown etiology, 3; abruptio placentae, 2; diabetes (preeclampsia), erythroblastosis fetalis, and anesthesia, 1 each; and 1 each from prematurity owing to placenta previa, diabetes, nephritis and azotemia, and atelectasis.

One infant who survived labor and cesarean section is spastic and retarded. In the cesarean section group (Table 1), 5 infants suffered some respiratory distress at birth but none had permanent sequelae. In the internal version group, 3 infants suffered shoulder girdle fractures and 6 had respiratory distress. There were no permanent sequelae in this group. The incidence of prolapsed fetal parts was as follows: cord only in 2, arm and cord in 9, arm in 15, and foot in 1.

Of the 101 deliveries, 87 occurred between the thirty-sixth and the forty-second week of pregnancy, 1 occurred twenty-eight weeks after gestation, 11 between the thirty-second and the thirty-fifth week, and 2 later than forty-two weeks. In 36 patients, transverse presentation had been noted on routine prenatal examinations. In 28 of these, the fetus had been converted to breech or vertex presentation during prenatal examinations. The fetus in the transverse

TABLE 1
METHOD OF DELIVERY AND FETAL LOSS

	Fetus			Presentation-complications cause of death		Corrected fetal loss
Method of delivery	*Total no.*	*Survived*	*Died*	*Yes*	*No*	*(%)*
Cesarian section	18	11	7	1	6	2
Internal podalic version and breech extraction	36	21	15	9	6	25
External version	17	16	1	1	0	6
Total	101	78	23	11	12	11

TABLE 2

ANALYSIS OF 11 FETAL DEATHS DUE TO PRESENTATION

Gestation (weeks)	*Fetal weight (gm.)*	*Fetal heart tone on admission to hospital*	*Method of delivery*	*Time of fetal death*	*Cause of fetal death*
40	3,610	Present	IVBE	After delivery, 48 hr.	Asphyxia, cerebral trauma
39	2,520	Absent	IVBE	During labor	Cord prolapse
40	2,800	Present	IVBE	During labor	None apparent, prolapsed arm
42	3,450	Present	IVBE	During delivery	Difficult breech extraction, uterine contraction ring
41	3,360	Present	IVBE*	During delivery	Difficult breech extraction
39	3,550	Present	IVBE	During delivery	Fetal heart tone ceased during version
36	3,140	Present	IVBE*	During delivery	Cord prolapse; difficult breech extraction
33	1,730	Present	IVBE	During delivery	Difficult breech extraction
39	3,000	Absent	Ext. V.	During labor	Prolapse of cord and extremity
40	3,350	Present	IVBE	After delivery, 30 hr.	Difficult breech extraction, asphyxia, cerebral trauma
41	3,600	Absent	Porro hysterectomy	During labor	Amnionitis, prolapsed arm

IVBE=internal podalic version and breech extraction   Ext. V.=external version   *IVBE with Voorhees' bag

position at the time the patient undergoes prenatal examination persists to term or presents in labor in faulty presentation in only 1 of 6 patients. Of the 101 infants, 79 weighed between 5 and 9 lb. at birth. Nine weighed less than 5 lb. and 13 weighed more than 9 lb.

Incidence of transverse presentation was influenced by parity. Almost ninefold more multiparous patients had transverse presentations (Table 3). As would be expected from the foregoing statement, the incidence was higher among women more than 30 years of age.

No maternal deaths occurred, and morbidity by temperature standards was 5%. After delivery, 3 patients underwent hysterectomy: one for abruptio placentae, one a Porro hysterectomy for amnionitis, and a third because of uterine rupture with internal version and breech extraction.

TABLE 3

PARITY AND INCIDENCE OF TRANSVERSE PRESENTATION AMONG 32,500 DELIVERIES

Parity	*Estimated no. deliveries*	*Transverse presentation*	
		No.	*%*
0	9,588	10	0.10
1	9,165	21	0.23
2	6,402	25	0.39
3	3,705	12	0.32
4+	3,640	33	0.91
Total	32,500	101	0.31

After clinical examination and before delivery, the diagnosis was suspected in 99 of the 101 patients; it was confirmed by sterile vaginal examination in 50 women and by roentgenograms in 32. In 2 patients, abnormal presentation was not suspected until delivery. The cause of transverse presentation usually is not clear, but associated conditions present in the 101 patients studied were as follows: ruptured membranes before labor in 28; cephalopelvic disproportion, 24; placenta previa (low implantation), 21; uterine abnormality, 14 (bicornate uterus and uterine fibroid, 7 each); small fetus, 9; Voorhees' bag, 5; abruptio placentae, 4; and hydramnios and large ventral hernia, 3 each.

CESAREAN SECTION

A corrected fetal loss of 2% was obtained among the 48 women treated by cesarean section. Cesarean sections were done primarily for transverse fetal presentation in 22 patients; other factors which contributed to the use of cesarean section were cephalopelvic disproportion in 16, bleeding complications in 12, previous cesarean section in 8, medical indications in 2, and uterine fibroids in 1. In 9 patients, external version had been attempted without success before cesarean section. Twenty-eight women had cesarean section without any labor. Labor was prolonged in only one patient, a primipara who was in labor twenty-eight hours. Forty-four of the cesarean sections were done with less than 6-cm. cervical dilation, and 4 were done after the cervix had dilated 7 cm. or more.

INTERNAL PODALIC VERSION AND BREECH EXTRACTION

This method of delivery was used in 36 patients with a corrected fetal loss of 25%. The decision toward delivery by this method was influenced by the following factors: transverse presentation alone, 15; near complete cervical dilation on admission to the hospital, 8; intrauterine dead fetus on admission, 7; parturient patient with fever, 7; placental bleeding, 5; small baby, 4; membranes ruptured more than twelve hours on admission, 4; and presentation not suspected until delivery, 2.

The average length of labor for primiparas under this method of management was thirteen to forty-nine hours, with only 2 in labor more than twenty hours; for multiparas, the length of labor averaged two to twenty hours, with 7 in labor more than ten hours.

EXTERNAL VERSION

External version was used successfully in 17 patients with conversion of the transverse presentation to a vertex presentation in 13 and to a breech in 4. The corrected fetal loss for external version was 6%. In 8 patients, after successful external version, a binder was used to hold rolled towels along the sides of the abdomen, thus keeping the fetus in the converted position (Fig. 3). One patient was treated successfully by external version when internal version could not be accomplished. All 17 patients were multiparas and only one was in labor more than ten hours. Spontaneous delivery after version occurred in 14 patients; three women were delivered by forceps. External version was usually performed early in labor and was easily accomplished in all 17 patients successfully managed by this method.

Table 4 shows the trend in management of this transverse fetal presentation at the Mayo Clinic from 1933 through 1961. Presence of the transverse presentation, prenatally or in labor, should alert the obstetrician to the possibility of cephalopelvic disproportion, placenta previa, or low-lying placenta and uterine tumor or abnormality.

BROW AND FACE PRESENTATIONS

Brow and face presentations represent attitudes of fetal cephalic deflection or hyperextension. Figure 4 illustrates x-ray findings in a typical brow presentation. The physician should be on the alert for this possible cause of dystocia and uterine inertia, particularly when the fetal head remains high during labor or the fetal cephalic prominence is palpated on the same side as the back. Recognition and proper management of these cases will reduce to a minimum the potential danger of this complication.

A review of 29,509 deliveries encountered over a period of almost thirty years showed 50 face

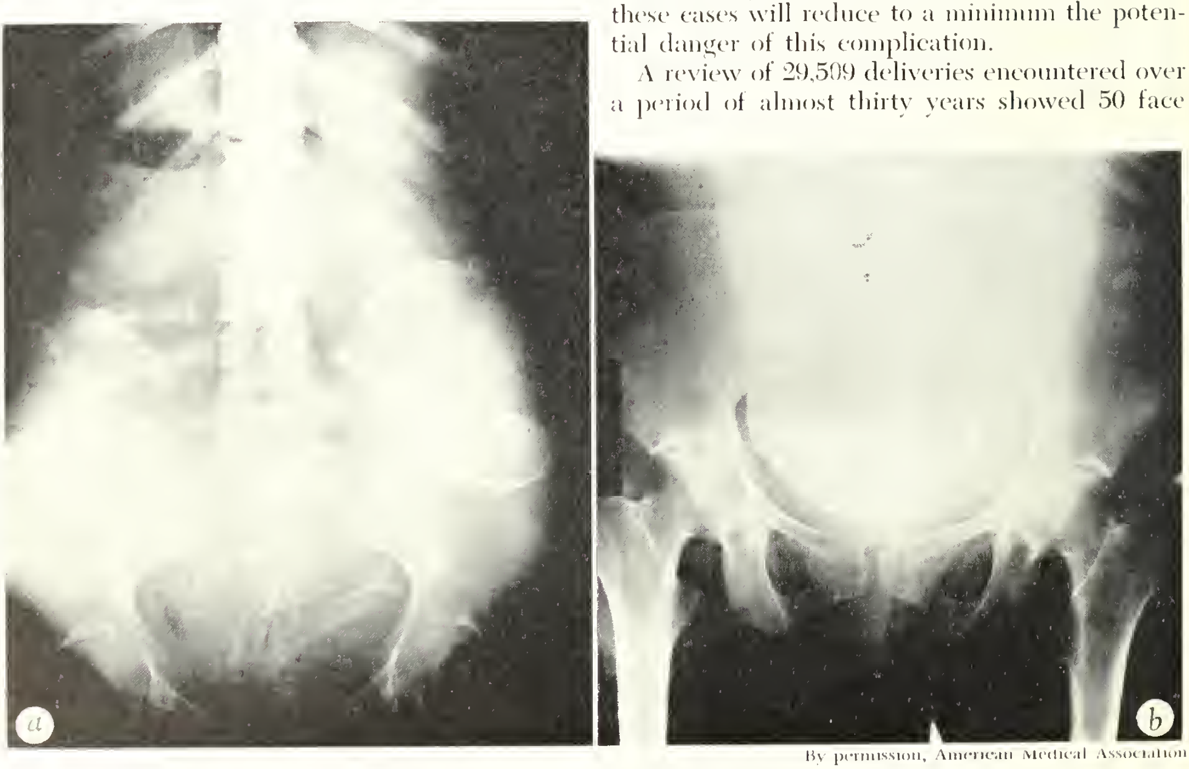

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Fig. 3a. Before external version. b. After external version and with abdominal binder[2]

TABLE 4
TRENDS IN TREATMENT

Date	Total no. cases	%		
		CS	IVBE	Ext. V.
1933-1942	18	11	78	11
1943-1952	37	62	32	6
1953-1961	46	50	22	28

CS=cesarean section
IVBE=internal podalic version and breech extraction
Ext. V.=external version

presentations or 1 in 590 deliveries. Thirty-four brow presentations occurred, or 1 in every 868 deliveries. The cause of the fetal cephalic deflection is usually obscure, but cephalopelvic disproportion, prematurity (small fetus), low-lying placenta, and cranial abnormalities of the fetus have been reported as possible contributing factors. Associated conditions in 84 patients were as follows: contracted pelvis, 21; large fetus (more than 4,000 gm.), 13; small fetus (less than 2,500 gm.), 17; fetal cranial abnormalities, 5 (four anencephalic and 1 hydrocephalic); low placentation, 4; membranes ruptured before labor, 4; and uterine fibroids, 2. The distribution of patients by maternal age or parity did not show a significant relationship to the incidence of brow or face presentation. Fixed fetal deflection attitudes probably do not occur often before the onset of labor, and the diagnosis usually is not established until the patient is in active labor, often in the delivery room with delivery imminent. The following methods of diagnosis were used in the 84 patients under discussion: rectoabdominal examination, 16 (12 face, 4 brow); vaginal examination, 20 (7 face, 13 brow); x-ray examination, 9 (7 face, 2 brow); at delivery, 39 (24 face, 15 brow).

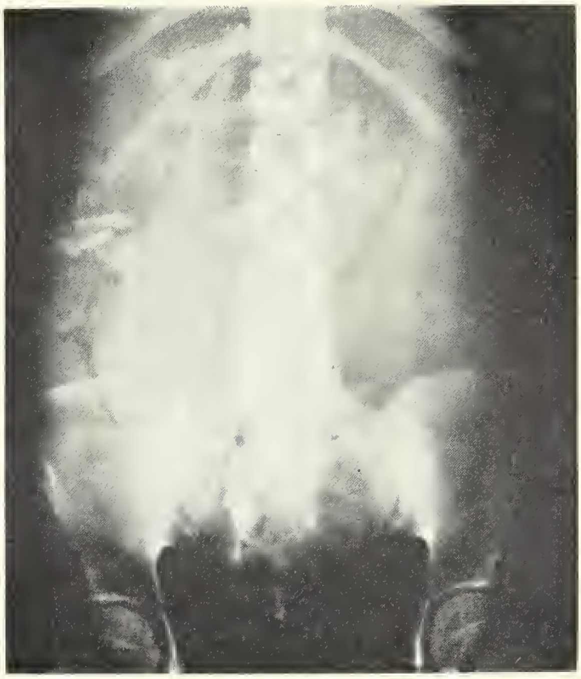

Fig. 4. Typical brow presentation

In many face and brow presentations, delivery occurs spontaneously without complications. However, prolonged labor is not uncommon due to dystocia and secondary uterine inertia. Twelve primiparas and 12 multiparas (29%) experienced prolonged labor. Eleven of these eventually delivered vaginally, and 8 required cesarean section; all but one of the patients who had cesarean section were given a trial of labor.

Management of face presentation. Management of delivery with face presentation is summarized in table 5. The position listed as "face" was not otherwise defined in the records. Sixty

TABLE 5
MANAGEMENT OF FACE PRESENTATIONS

Delivery	Position				Total	
	Mentum					
	Anterior	Transverse	Posterior	"Face"	No.	%
Spontaneous	19	4	4	3	30	60
Forceps	3	2*	3	–	8	16
Subtotal	22	6	7	3	38	76
1. Rotation to mentoanterior presentation						
a. Spontaneous†	—	5	3	–	—	—
b. Manual†	—	—	3	–	—	—
2. Manual flexion to occiput presentation†	1	1*	–	1	—	—
Internal podalic version and breech extraction	—	1	1	–	2	4
Cesarean section	—	3	6	1	10	20
Total	22	10	14	4	50	100

*One midforceps delivery; all other forceps deliveries by low or outlet application
†Numbers for this item represented in foregoing subtotals

TABLE 6

MANAGEMENT OF BROW PRESENTATIONS

	Position					
	Frontum				*Total*	
Delivery	*Anterior*	*Transverse*	*Posterior*	*"Brow"*	*No.*	*%*
Spontaneous	8	5	2	–	15	44
Forceps	5	4	2*	2	13	38
Subtotal	13	9	4	2	28	82
1. Conversion to occiput presentation						
a. Spontaneous†	2	–	2	–	—	—
b. Manual†	2	1	1*	–	—	—
c. Forceps†	4	–	–	–	—	—
2. conversion to mentoanterior presentation						
a. Spontaneous†	1	3	1	–	—	—
b. Manual†	–	2	–	–	—	—
c. Forceps†	–	–	–	–	—	—
Cesarean section	1	1	2	2	6	18
Total	14	10	6	4	34	100

*One midforceps delivery; all other forceps deliveries by low or outlet application

†Numbers for this item represented in foregoing subtotals

percent of the patients delivered spontaneously, and all infants in this category in the mentoanterior position were delivered vaginally. Forceps deliveries included instances in which forceps were used for simple assistance with mentoanterior presentation and a few times in which the presentation was converted by flexion to an occiput and the delivery was accomplished with forceps. One midforceps delivery followed manual flexion of the fetal head; all other forceps deliveries were by low or outlet application. In 6 patients, manual rotation or flexion of the fetal head vaginally resolved the problem, allowing spontaneous delivery or the use of outlet forceps. In 8 instances the head rotated spontaneously to the mentoanterior position during observation.

Internal podalic version and breech extraction were used in 2 patients. In the first, the second of twins was delivered without difficulty by this method. In the second patient, a multipara, attempts at manual conversion of the right mentoposterior position to the anterior position failed after the cervix was fully dilated. Internal podalic version and breech extraction were accomplished with moderate difficulty and delivery was completed with Piper forceps. The infant weighed 8 lb. 2 oz.; it was moderately distressed at delivery but recovered rapidly with the usual resuscitative measures.

Nine of the 10 infants delivered by cesarean section presented in the mentoposterior or transverse position. However, a mentoposterior position early in labor does not necessarily call for immediate cesarean section unless progress has become arrested. This is evidenced by the fact that during a trial of labor in 7 patients with mentoposterior positions, the infant's head rotated spontaneously or was rotated with manual assistance to a mentoanterior position, and the infant was delivered vaginally.

Management of brow presentation. The position listed as "brow" in table 6 was not otherwise defined in the records. As the table shows, 15 of the 34 infants were delivered spontaneously, about half of them presenting with the brow anterior. Of 13 infants delivered vaginally with forceps, one required midforceps application after manual conversion from a brow to an occiput presentation; the other 12 were delivered by low or outlet applications of forceps. Twelve conversions by flexion of the extended fetal head to an occiput presentation and 7 conversions to mentoanterior position by increasing the extension of the fetal head allowed subsequent spontaneous or forceps vaginal delivery.

Craniotomy was performed in one instance; the patient, a primipara, was transferred to our hospital after twenty-two hours of labor. Brow presentation was noted on admission, and no fetal heart tone was audible. Nine hours after the patient's admission and with a cervical dilation of 9 cm. for four hours, the obstetrician elected to do a craniotomy and fetal extraction. This was accomplished without injury or morbidity to the mother. Decompression of a hydrocephalic fetal head that presented by brow was followed by uneventful forceps delivery in one case. Six infants presenting by brow were delivered by cesarean section. Contributing indications for cesarean section were small pelvis, large fetus, prolonged labor, and contraction ring.[1] Cesarean section for face presentation has been used less frequently in the later years represented by this study. Before 1950, it was done in 43% of patients, compared with 9% after 1950. This trend was seen to a lesser degree in the brow presentations, wherein cesarean section was used in 27% of patients before 1950 and 17% after 1950. Most cesarean sections were performed on primiparous patients.

MORBIDITY AND MORTALITY

Maternal morbidity was noted in 4 patients of the total series. There was no maternal mortality. Eight infants with face presentation were lost. Of these, 4 were anencephalic; 2 were premature, weighing 790 and 1,150 gm.; and 1 was stillborn after placental abruption. The remaining infant died on the seventh day after delivery by cesarean section; there was clinical evidence of intracranial damage. Surgical and necropsy studies, however, failed to substantiate the intracranial damage, but death probably was attributable to the faulty fetal presentation. The corrected fetal mortality rate attributable to face presentation itself is, therefore, 2%.

Six infants with brow presentation were lost. Two were premature, weighing 1,720 and 2,050 gm. One died from severe erythroblastosis and one from hydrocephalic decompression. One that was of viable size died in utero during labor, and one died thirty-two hours after delivery by cesarean section. These 2 deaths may have been attributable to complications arising from faulty fetal presentation. The corrected fetal mortality rate, therefore, is 6%.

SUMMARY

In transverse presentation of the fetus, cesarean section has greatly reduced the fetal mortality as has also the judicious use of external version and subsequent vaginal delivery in selected cases. Internal podalic version and breech extraction carry a much greater risk, particularly to the fetus, and are reserved mainly for delivery of the patient who arrives at the hospital with nearly complete dilation when external version is unsuccessful or in the patient with a dead fetus.

In brow or face presentation, the possibility of a fetal cephalic deflection attitude should be kept in mind when the fetal head remains high during the course of labor as well as when the fetal cephalic prominence is on the same side as the fetal back. Trial of labor is justified with frequent evaluation of uterine contractions and physical status of mother and fetus and careful observations of progress during labor. Unless there is arrest of labor or signs of maternal or fetal distress, most of these women can be delivered vaginally. Prolonged labor is not uncommon. Manual and forceps rotation, flexion, or further extension of the fetal head is occasionally successful in converting the presentation to a more favorable one for subsequent vaginal delivery. The most frequent need for cesarean section in this series arose in primiparas, particularly in those with the fetus in mentoposterior position.

Read at the meeting of the North Dakota State Medical Association, Minot, North Dakota, May 4, 1964.

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PERICARDIAL EFFUSION can be diagnosed easily, quickly, and safely by a radiographic method utilizing an image intensifier. The layer of epicardial fat is thick enough to be recognized with the image intensifier in about three-fourths of adults. The layer normally is less than 2 mm. inside the outer margin of the pericardium, and the epicardial fat and the pericardial margin move synchronously and with equal amplitude, reflecting cardiac contractions. Pericardial effusion, however, causes the epicardial fat to be displaced inward, often a centimeter or more, and the heart is seen contracting well inside the nearly motionless and greatly enlarged pericardial silhouette.

JAMES R. STEWART, M.D., and OWINGS W. KINCAID, M.D., Mayo Clinic, Rochester, Minn. Proc. Mayo Clin. 38:339-344, 1963.

Fargo Clinic Series

Ear, Nose, and Throat for the General Practitioner

Part III — Throat, Headaches, and Salivary Glands

DUANE W. NAGLE, M.D.
Fargo

THE ORAL CAVITY includes the lips, buccal mucosa, teeth, alveolar mucosa, floor of the mouth, hard palate, soft palate, and tongue. The most important item for examination is adequate lighting by the use of a head mirror and 2 tongue depressors. With a tongue depressor in each hand the lips, buccal mucosa, teeth, and alveolar tissue can be very adequately examined. The tongue and floor of the mouth can also be seen very easily. Should there be any question the gloved finger may be used to palpate these structures. By this method any indurated areas can be felt quite readily and biopsies can be taken if necessary. Bimanual palpation is very essential for the floor of the mouth and for the body of the tongue. The submaxillary glands can be felt readily and compared for size and mobility. The most important thing here is to decide whether the mass being felt is the submaxillary gland or whether it could be a lymph node enlargement in the submaxillary area. History is very important since the submaxillary gland when involved with either stone or infection, will usually swell if stimulated with sour juices or when food is chewed. When the gland is palpated bimanually, clear mucus can be seen coming from the orifice of the duct which is located on either side of the frenulum of the tongue next to the floor of the mouth. Should there be infection involving the gland, pus will be seen coming from the duct. Often it is necessary to do a sialogram to decide whether the involvement is in the salivary gland or whether it is an extrinsic mass involving the submaxillary area. X-rays will often demonstrate stones but do require very fine technique in the taking of the x-rays.

When the tongue is examined it should be checked for mobility, size, and appearance and then palpated to see if any masses can be felt within the tongue itself. One of the most distressing problems is the patient complaining of burning or discomfort involving the anterior third or tip of the tongue. Most of the time no positive findings can be found and no specific history can be elicited as to what makes it better or worse. The patient will often have a deposit of tartar on the oral side of the teeth, and the constant rubbing against this roughened surface will make the tongue sore. This can be easily checked by use of the head mirror and a laryngeal mirror. Frequently individuals are seen with a sore tongue that is associated with the use of upper dentures. These individuals have a tendency to drink and eat things that are too hot. The plastic denture between the tongue and the hard palate deprives them of a temperature-detecting mechanism as well as ordinary sensory-detecting mechanisms. The best examples of this would be the older individuals who are edentulous and are constantly getting a foreign body, such as a fish bone or a sliver of solid bone or meat, stuck in either the oropharynx or hypopharynx.

Quite frequently a patient will come to you because of a large lump on the hard palate and is usually quite concerned because of the

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possibility of cancer. These large, stony lesions occur in the midline of the hard palate and may measure anywhere from 5 to 6 mm. to 1 to 2 cm. in size. They are called "torus palatinus." These will enlarge over a period of many years and are of no consequence unless the individual needs an upper denture. When a denture is needed it is necessary to make an incision, elevate the mucosa, and then to remove the bone with an electrically driven bur. Without this removal it is almost impossible to fit the upper denture.

Another not too uncommon problem involving the oral cavity is an opening between a molar tooth and the maxillary sinus. This will occur when the dentist extracts a molar tooth where the roots are next to the maxillary sinus. Most of the time this is not recognized at the time of the extraction, and before it is found the sinus becomes infected. These are extremely difficult to treat at times and, again, if seen early may be closed quite readily. When there is considerable drainage from the infected sinus it is necessary to eliminate the infection in the sinus by removal of the necrotic bone from the oral antral opening. A flap of either mucosa or tissue from the hard palate is used as a pedicle graft in order to close the opening. This is referred to as an oral antral fistula.

Cleft palate and cleft lip are not too uncommon in newborns and almost always require immediate attention. The defect in the lip and nose is usually closed as soon as the birth weight has been regained, whereas the cleft alveolar ridge, hard palate, and soft palate may be repaired between 1 and 2 years of age. The cleft palate child presents several problems, which affect the middle ear, speaking, breathing, and swallowing. When a child has had a cleft lip and palate repair it is always important that an adenoidectomy and a tonsillectomy not be done unless absolutely necessary. When the tonsils are removed along with the adenoids, tissue scarring may result that pulls the soft palate so tense that on swallowing an opening occurs behind the soft palate and the posterior wall of the nasopharynx. This will allow food and fluid to pass up into the back of the nose. When the adenoid tissue is removed the normal fold of Passavant is often inadequate to close the opening between the soft palate and the posterior wall of the oropharynx. Therefore, considerable thought should be given to these children before performing a tonsillectomy-adenoidectomy on them. These cleft palate children also have a great deal of trouble with the middle ear, since there is an abnormal functioning opening of the eustachian tube. Consequently, these children will develop otitis media and serous and mucoid otitis media very easily. A large number of them will develop chronic draining of the ears along with a considerable loss of hearing. When these children are having trouble it is well to seek the help of an otologist.

The throat is divided into 3 sections, namely (1) the nasopharynx, (2) the oropharynx, and (3) the laryngopharynx. The nasopharynx can be examined quite easily at times, but if the individual is tense or has a rather redundant soft palate the examination can be very difficult. When the nasopharynx is to be examined the patient is instructed that a tongue depressor will be used to hold down his tongue and that he should breathe normally and not hold his breath. A small mirror which has been previously warmed is held in the other hand. The mirror is slid down the tongue depressor until the posterior wall of the oropharynx is reached. The reflected light is then brought up into the nasopharynx where the posterior side of the soft palate, the fossa of Rosenmüller, and the choana can be seen. The fossa of Rosenmüller should be particularly examined as a large number of tumors of the nasopharynx occur in this area. If large lymph nodes are found in the neck, the nasopharynx in particular should be examined. When these cases are to be examined it is well to decongest the nose with 0.25% phenylephrine hydrochloride (Neo-Synephrine), following which some local anesthetic such as 5% topical lidocaine hydrochloride (Xylocaine) can be used or 2% cocaine can be used to cocainize the nasopharynx and oropharynx. A small catheter can then be passed through each nostril and brought out through the mouth to retract the soft palate and give excellent exposure of the nasopharynx. A larger mirror such as the No. 3 can be used which will give a much better visualization of the nasopharynx. After the oropharynx and nasopharynx have been cocainized the patient is not uncomfortable and the nasopharynx is much easier to examine.

When the oropharynx is examined the tonsillar areas can be seen under direct vision. With the No. 4 mirror the base of the tongue, inferior poles of the tonsils, epiglottis, and laryngopharynx can also be seen. The patient is instructed to stick out his tongue where it can be grasped with a 4 × 4 gauze square; then with a previously warmed mirror, visualization can be accomplished in most instances without difficulty. The patient is again instructed to breathe normally and not to hold the breath, since this produces gagging which makes it impossible to examine the lower portion of the oropharynx and hypopharynx. The vocal cords can be visualized and checked for appearance and mobility very easily. One must remember that in a mirror what appears to be anterior is really posterior and vice versa. Tumors involving the pyriform sinuses are frequently submucosal, and the only thing that one will notice is that there may be a tendency for pooling of mucus in the sinus without any evidence of actual tumor. These individuals should definitely be examined under general anesthesia so that the area can be more closely examined under direct vision and by palpation. Lesions of the vocal cord will appear as thickened areas or may be raw and ulcerated. These individuals usually give a history of persistent hoarseness over a period of many months or even a year or more. It is all too common to find a patient who has had hoarseness for twelve to fifteen months and has been treated unsuccessfully with various antibiotics. When improvement does not occur the patient is then examined and the lesion is found.

Obstructions involving the airway are usually the result of a large bolus of food, particularly meat, that will not pass the cricopharyngeus sphincter. When this occurs it is usually a dire emergency, and the life of the patient may depend upon fast action on the part of whomever is near him. The index and middle fingers are introduced into the mouth and pharynx where the bolus can be felt and extracted. Should this not be possible, there is a variety of heroic measures that have been used such as a partial tracheostomy with a pocket knife, or, in some cases, an opening has been made between the cricoid and the thyroid cartilage to secure an airway. In one instance a nurse quickly placed a 13-gauge needle through the man's skin and into the trachea which gave him enough of an airway until the bolus of meat could be extracted with a laryngoscope. That nurse saved the man's life. The procedure should be kept in mind. There are obstructions other than food that will cause trouble, especially in children where any type of foreign body such as a plastic toy, a rubber balloon, or candy will obstruct the larynx. I was called to perform a tracheostomy on a small infant with a diagnosis of laryngotracheobronchitis. An attempt to intubate the child was made before the procedure, but on examination the glottic area was red and so edematous that it was almost impossible to identify normal structures. The child was given oxygen, and a rapid tracheostomy was performed. A small button of cartilage was removed from the anterior wall of the trachea, and the breathing was immediately relieved. The condition did not appear to be that of laryngotracheobronchitis. Upon examination of the underside of the glottic area a closed safety pin was found. This was removed, and the child made an uneventful recovery.

Hoarseness is a very common complaint, and obviously one of the most important things to rule out is carcinoma involving the glottic area. There are many other things that will cause hoarseness, but carcinoma is certainly the most serious one. The inflammatory conditions involving the glottic area will produce either huskiness or hoarseness of the voice. Thick secretions coming from the lung, trachea, and oropharynx will interfere with the normal function of the cords. Paralysis of the recurrent laryngeal nerves going to the larynx must be thought of when a unilateral paralysis involving either cord is found. Chest x-rays are a must to rule out mediastinal tumor. The recurrent laryngeal nerves dip down into the thorax and then come back up under the thyroid gland to enter the laryngeal area. A mediastinal tumor will involve the left recurrent nerve frequently. Occasionally if the patient has had total thyroidectomy, the recurrent laryngeal nerves will be injured. The patient will give a good history of chronic hoarseness following thyroid surgery.

Indirect laryngoscopy, in most instances, can be done relatively easily and will quickly give the answer as to what is producing the hoarseness. When the lesion is found involving the glottic area a biopsy is necessary under direct vision so a tissue diagnosis can be made. Direct laryngoscopy can be done under local anesthesia using cocaine, or it can be done under general anesthesia. The patient should be intubated with the smallest cuffed endotracheal tube. The anterior commissure scope is used to examine the glottic area, and the biopsies are taken. If there appears to be a lesion involving the hypopharynx or the glottic area, the patient should be referred to a doctor doing this type of work, since it will undoubtedly necessitate the use of either x-ray, surgery, or a combination of both.

Papillomas do occur in the laryngeal area, can be extremely difficult to treat, and can recur even under the best of care. A child that has persistent hoarseness should be adequately examined to be certain that it is not a problem of papilloma because early treatment is a must. Single polyps, hematomas, and vocal cord nodules also occur. Once these are removed and the patient has adequate voice rest postoperatively, recovery usually is uneventful.

There are instances where angioneurotic edema will produce an acute respiratory embarrassment and may require fast action which will necessitate either the insertion of an endotrachial tube or a tracheotomy to save the life of the patient. Unfortunately these situations do not always occur in the emergency room or in the presence of a doctor. More often than not these patients will die before someone with knowledge of what to do arrives.

When bilateral paralysis of the vocal cords occurs, usually secondary to thyroid surgery, it is necessary to do a tracheostomy. The reason for this is that the cords are fixed in midline position, and it is impossible for the individual to breathe adequately under these circumstances. The overall prognosis in a bilateral midline paralysis is very poor without surgical intervention.

The acute and chronic sore throat is probably just as common as ever despite all of our antibiotics. Acute tonsillitis is still very common in children but usually can be very adequately treated with antibiotics. We still see peritonsillar abscesses, but these are most often seen in adults rather than children. These individuals are unable to swallow their own saliva and are usually quite dehydrated when first seen. Such patients are hospitalized and given intravenous fluids to restore hydration to the body. At the same time, they are given a million units of aqueous penicillin every six hours provided they are not sensitive to the drug. Ten milligrams of morphine or 75 to 100 mg. of meperidine hydrochloride (Demorol) will relieve the extreme discomfort and thereby make it somewhat easier to drain the abscess. The soft palate and superior pole of the tonsillar area are coated with 10% cocaine, and then 2% lidocaine hydrochloride with 8 drops of adrenalin to the ounce is infiltrated in the area of the incision. The incision is made over the superior pole of the tonsil or where a fluctuant area can be felt. The incision is made with a No. 15 blade, and then the abscess is approached with the curved, sharp-nose tonsillar hemostat. The course of the hemostat should be posteriorly and then down behind the tonsil to find the abscess. Once the hemostat is in position one merely opens or spreads the tip of the hemostat to create a drainage tract. A large neural sucker is held in one hand and the hemostat in the other. This will eliminate the saliva, blood, and the pus when it drains. Once the abscess is drained, the patient will usually make a fairly rapid recovery on antibiotics. Lingual tonsillitis is not too uncommon in adults who have had the tonsils removed in childhood but still have remnants. When they have had repeated episodes of lingual tonsillitis, it is well to remove these tags and when indicated the lateral pharyngeal bands surgically. Should there be an occasional infection without exudate it can be treated with antibiotics.

Acute pharyngitis with diffuse redness of the soft palate or oropharynx is very common and seems to run a course of its own whether treated with antibiotics or not. Unfortunately these patients, on occasion, are given antibiotics, not by the choice of the doctor but because of the demands of the patient.

Vincent's infection, or trench mouth, is quite common; however, with good oral hygiene and antibiotics these individuals will respond quite well. There are some quite resistant infections, and when this does occur, it is always well to investigate the individual further to be certain that this is not an acute leukemic process or an agranulocytic process. When one can be certain that these 2 conditions are not present, penicillin should be continued but in larger doses, provided the individual is not sensitive to the antibiotic.

Diphtheria is something that should be kept in mind any time an exudate is seen in the throat or nasopharynx, since this organism certainly has not been eliminated. When the organism has been identified as Corynebacterium diphtheriae. rapid treatment should be instituted because a myocarditis can occur quite readily. These individuals should be placed on large doses of diphtheria antitoxin and massive doses of penicillin.

Infectious mononucleosis is very common, especially in the late teens and early 20s. These individuals will usually come in with a sore throat. They may have exudate, may be violently ill, or may feel listless and halfway sick. These patients will often give a history of having felt listless and tired for some time before they actually came down with a sore throat. They will also complain of vague abdominal pains. nausea, and possibly vomiting. When the throat and neck are examined the cervical glands will be large and moderately tender. The tonsillar areas will be red and swollen and may contain a grayish membrane. A white count, a differential count, and a heterophile antibody titer should be obtained. The lymphocytes will be elevated, and 50% or more of them will be an atypical type of lymph. Heterophile antibody titers may or may not be elevated, but if the titer is 1:64 or over, along with a positive blood smear, one can be quite certain of the diagnosis of infectious mononucleosis. When the heterophile titer persists over a period of weeks or months the lymphomas must be thought of.

The treatment of infectious mononucleosis varies greatly. Antibiotics may be used to control secondary infection but these drugs will do nothing for the infectious mononucleosis. Bed rest and fluids are necessary during the acute phase of the infection. When the individual is acutely ill with nausea and vomiting, he should be hospitalized and given intravenous fluids. Antiemetics are used to control the nausea. These patients can be treated with steroids, and within twelve to twenty-four hours will make an almost miraculous recovery. I do not advocate the use of steroids in every case of infectious mononucleosis, but those who are acutely ill should be considered for steroid therapy.

Agranulocytosis and acute leukemia have been previously mentioned, and I mention them again only to point out that when bleeding and infection occur around the teeth along with ecchymotic areas of the buccal mucosa, one must rule these 2 conditions in or out at once. Generally, a peripheral blood smear will give you the diagnosis, but, if in doubt, a bone marrow biopsy would undoubtedly have to be done to give positive confirmation.

HEADACHE, NEURALGIA, AND FACIAL PAIN

Headache, neuralgia, and facial pains are very difficult to discuss for a number of reasons—the main one being that little is actually known about the true physiological mechanism. A large number of medications are available for treatment, but we still have headaches. This only proves that we do not know, in most instances, what actually is causing headaches. Headache may be defined as a diffuse pain over the various parts of the head but may not be confined to the distribution of any one nerve. Neuralgia is described as a severe pain, throbbing or stabbing in nature, that follows the course of a specific nerve. There have been numerous classifications for headache, but I think the one of L. R. Boies, M.D., University of Minnesota, describes headache simply and adequately.

- I. headache from systemic or general disorders
  - A. infectious diseases or localized inflammation
  - B. circulatory disturbances
  - C. abnormal blood states
  - D. gastrointestinal disturbances
  - E. emotional disorders, anxiety, and nervous tension
  - F. miscellaneous
- II. independent forms of headaches
  - A. muscles and fibrous structures
  - B. vascular structures of the head
- III. headaches from disorders from within the head
  - A. intracranial disease
  - B. disorders of the eye
  - C. nasal space disease

Most people coming to the office with a headache have generally made up their mind that it is caused by the sinuses, the eyes, or some other condition. When this comes from the sinuses, there should be tenderness, especially on application of pressure over the involved sinus. There should be a pussy, purulent drainage coming from the sinus orifice in the middle meatus. When sinuses are transilluminated, they should be clear unless undeveloped or filled with fluid. The ultimate way to examine sinuses is with x-ray. With a clinical examination and transillumination one can have a good idea about the frontal and maxillary sinuses. The only way the ethmoid and sphenoid sinuses can be examined is by x-ray.

Not all individuals with circulatory disturbances, abnormal blood states, and gastrointestinal disturbances will have a headache, but the incidence is high enough to have some significance. Whether this is on an ischemic basis or due to a fluid balance disturbance I do not know, but it does occur, and when the underlying condition is corrected or improved the headaches are relieved.

The most common headache is that of a tension or an anxiety state. These headaches are of the bizarre type and usually have no rhyme or reason. Almost invariably the patient will complain of an ache on the top and the back of the head.

When the headache originates in the fibrous structures of the head, pains are usually caused by an inflammatory condition involving the muscle fibers and also the fibrous fascia. Muscular spasm without inflammation will give pain. Tension may result from holding the head in one position while at work. These cases generally respond with heat, massage, and aspirin. When the mechanism is explained to the patient he will usually cooperate. Fibrositis and myositis are often associated with the arthritic changes involving the cervical spine. When the patient is chilled or performs difficult movements not ordinarily done, this will cause the muscle fibers and the fibrous layer to be irritated. On examination these individuals will have specific areas where the muscle is tender, usually on the base of the skull. The soreness may extend along the upper borders of the trapezius to the shoulder and down the back. Heat, massage, and 10 grains of aspirin four times a day will give good relief; if not, diathermy or ultrasonic sound may be necessary.

When the headache apparently originates from a disorder within the head, one must always think of vascular problems, such as an aneurysm and atherosclerosis; if there is any neurological difference between the 2 sides, hemorrhage, thrombosis, and embolic conditions must be considered. Where a diffuse condition is apparently present, an encephalitic or meningeal inflammatory pain, as caused by a virus or bacteria, must be considered. If there is meningeal irritation one must be certain that it is not of middle ear or mastoid etiology. The frontal sinuses must also be checked, since the posterior wall of the frontal sinuses is next to the dura.

Primary or metastatic tumors of the brain must be considered along with the possibility that the individual may have had head injury several days or weeks before the onset of symptoms. When any of these are suspected, it is well to refer the patient to a neurologist.

Headache may also arise from the ocular system and may be due to an increased intraocular tension (glaucoma), intraocular inflammation (iritis), imbalance of the ocular muscles, or a refractive error. The intraocular tension can be measured without too much difficulty. If it is an intraocular inflammation or iritis the patient's eye is reddened, is very sensitive to light, and there is pain in the eye. When there is considerable swelling around the eye, one must think of the ethmoid or frontal sinuses as a cause. X-rays generally will not give the diagnosis, but do not forget to utilize the history and clinical findings.

Facial neuralgia is usually a sharp, sudden, intermittent pain which follows the distribution of a given nerve and usually does not have any apparent cause. On examination there usually will be tenderness, paresthesia, anesthesia, and possibly even motor paralysis if a mixed nerve is involved.

The most common one is the so-called trigeminal neuralgia or tic douloureux. This condition usually affects the patient after the fourth decade of life and is rarely bilateral in nature. It will involve one or more branches of the fifth cranial nerve and will produce excruciating bursts of pain. Sometimes the pain is triggered by merely touching the face, by moving the jaw, or by chewing food. This pain may appear almost continuously at times or may disappear for several weeks only to recur. The diagnosis usually is made clinically. The trigeminal nerve may be injected with a local anesthetic during an acute phase, and if relief is obtained, the nerve may be injected with alcohol. This will give varying relief, from a few months to several years. When this recurs it is often necessary to section the main trunk of the trigeminal nerve.

A second type is the so-called glossal pharyngeal neuralgia. This is less common, but it is also intermittent and paroxysmal. This nerve supplies fibers to the ear, pharynx, and tonsillar fossa. When cold water is given to the individual an attack is almost always precipitated. When the area of the ninth cranial nerve is cocainized with 10% cocaine and ice water again is given, the pain reflex should have been abolished. Treatment of this type of neuralgia is extremely difficult because of the location of the nerve; consequently, analgesics are most commonly used.

Branches of the facial nerve may be involved, but it is very uncommon and is limited to inflammation involving the geniculate ganglion. The pain here will involve the tragus, concha, external auditory canal, and tympanic membrane. Bell's palsy would be an example.

The auricular and superior laryngeal portion of the vagus nerve may be involved. This will produce earache which will occur through the superior laryngeal branch and the auricular branch of the vagus. These are most commonly involved when there is a malignant lesion on the rim of the larynx involving the epiglottis or the pharynx.

The second and third cervical nerves are usually irritated as a result of local inflammation or trauma.

THE SALIVARY GLANDS

The secretions of the oral cavity are derived from a number of glands; namely the parotid, submaxillary, and sublingual, which furnish most of the secretions for the oral cavity. A small amount of secretion also occurs from the glands of Blandin and Nuhn, the palatal glands, and a number of small mucus-secreting units situated in the floor of the mouth as well as the mucous membrane of the cheeks. All of these glands, of course, are subject to changes, but it is primarily the parotid and the submaxillary glands that will be of clinical interest. Abnormalities of the salivary glands may occur from: (1) developmental defects, (2) functional disorders such as decreased or increased secretions, (3) inflammatory disease, (4) obstructive lesions, (5) fistulous lesions, (6) trauma, (7) cysts, or (8) neoplasms, which may be benign, malignant, or mixed tumors. Congenital abnormalities of the salivary glands are extremely rare and of academic interest only.

The complete loss of function of a single salivary gland, such as the parotid or submaxillary, will not produce a dry mouth, since the other salivary glands will adequately compensate for this loss. Decrease in salivary secretion is most commonly seen in the aged individual. There may be short periods of decreased salivation as a response to stimuli resulting from fright and anger. These symptoms are of little significance because of their short duration. If this does occur in older individuals and is persistent, these individuals may sometimes be greatly benefited by the use of pilocarpine given three times a day before meals in order to promote salivation. Diet-restricting alkalies will also be of value.

Following x-ray therapy to the region of the mouth, glandular secretion is reduced, and a dry mouth usually occurs.

The secretion of saliva may be physiologically increased above normal. An example of this would be the increased amount of salivary secretions occasioned by the sight or smell of food.

Various drugs and poisons, such as the iodines, bromides, and pilocarpine, will increase salivation. Tobacco; local inflammations and irritations; reflex stimulation from the stomach, pancreas, and liver; motion sickness; hysteria migraine; and degenerative lesions of the basal ganglia will produce increased salivation.

The most common acute inflammatory disease of the glands is the virus infection of mumps. The parotid glands are the ones usually involved, either singly or bilaterally. The submaxillaries may be involved but usually are not. The sublinguals are rarely involved. Most of the infections of mumps occur between the ages of 5 and 15 years but can be seen in adulthood. The complications in adulthood may be very severe and involve the pancreas, the testes, and the ovaries; mumps encephalitis and labyrinthitis may cause a total loss of hearing in the ear involved.

Acute nonspecific inflammation of the salivary glands can occur and most often is a complication of some other infection such as scarlet fever or other streptococcal infections of the pharynx. This nonspecific sialadenitis may also occur following surgery when atropine has been used to control salivary secretions. An ascending infection takes place along the salivary ducts and is most commonly seen in individuals with poor oral hygiene. Chronic infections do occur and usually are the result of obstructions of salivary ducts by calculi, foreign bodies, or strictures following infections. The treatment of this is the control of the infection with antibiotics and the removal of the foreign body or dilation of the stricture. Results of such treatment of acute obstructive sialadenitis are usually good. However, if the infection has been present for a period of years the gland is usually so involved with chronic inflammatory changes that surgical removal of the gland is necessary to eliminate the chronic infection.

There is a condition known as Mikulicz's disease which is characterized by chronic afebrile, nonpainful, nontender enlargement of the salivary or lacrimal glands or both. The swellings are usually smooth, firm, and nonadherent to surrounding tissues. The disease is gradually progressive, and the glandular tissue is replaced by lymph cells. The most satisfactory treatment for this condition is x-ray to the involved gland.

Fistulous tracts in salivary glands do occur and may be draining externally or internally. They usually result from trauma, abscess, ulceration, and necrosis. A glandular fistula will usually close spontaneously. However, a duct fistula has a profuse amount of secretion and usually requires surgical treatment to eliminate the fistula.

Tumors of the salivary glands are not common, but when they do occur, almost any type of new growth may occur because of the histological structure. The parotid gland is most frequently affected, and the neoplasm most commonly encountered is the so-called mixed tumor. The treatment is surgical removal of the gland and tumor. Removal of the tumor alone is not acceptable. Malignant tumors of the salivary glands generally occur in the parotid and are usually of the carcinoma group.

Retention cysts and ranulas are both cystic tumors involving the floor of the mouth. Retention cysts may form in the sublingual gland or its duct and produce a fluctuant swelling under the anterolateral portion of the tongue. The ranulas form in the frenulum of the tongue and are derived from the sublingual ducts. The treatment of both is surgical excision or marsupialization.

Duct Ectasia

An Asymptomatic Pulmonary Change Related to Age

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In a recent scholarly review of the pathology of pulmonary emphysema, Thurlbeck[1] briefly discusses the air-space enlargement that occurs in the lungs with advancing age. He states that "the definitive description of the latter is still to be written." One reason for this is that normal human alveolar tissue has not been described in terms precise enough to permit clear statements of what particular structures show enlargement with advancing age, let alone how much they are enlarged. The present report, describing a measurable aspect of the alveolar duct and respiratory bronchiole and their surrounding alveoli, quantitates a change we have labeled "duct ectasia" and documents the incidence of this lesion in relation to various factors, including age.

MATERIALS AND METHODS

Between September 1959 and September 1963, 262 lungs were obtained from necropsies at Colorado General Hospital and Veterans Administration Hospital at Denver and studied by special techniques by the authors. The diseases, found at routine postmortem examination in each case, did not include the diffuse infiltrative pulmonary diseases, tuberculosis, silicosis, severe pneumonia, or lung cancer. While less elaborate studies were made at the start of the program, the following 7 techniques of study have been used during the last two years:

1. The fresh lung was inflated and ventilated in an airtight plastic cylinder, and its airway dynamics and one-second vital capacity were measured, somewhat as in the living lung.

2. Iodized oil was then instilled into the bronchi, and rapid sequence (4 per second) radiographs were made to detect the speed of airway collapse and any dilated bronchial glands or other bronchial abnormalities which might be present.

3. The contrast medium was then washed out, the lung was inflated at 8-cm. water pressure, and lung volume was measured by water displacement. This volume was converted to a total (that is, 2) lung volume by using a 55 to 45 ratio of right-to-left lung. The proportion of this figure to the predicted normal for that individual's sex and body length then was determined.

4. The pulmonary artery system then was injected with a warm gelatin and barium mixture at a pressure 10 cm. of water higher than the estimated pulmonary artery pressure during life. The lung was cooled and then x-rayed. It was then fixed by the formalin-fume method[2] or with Zenker-formol by the technique of Robert R.

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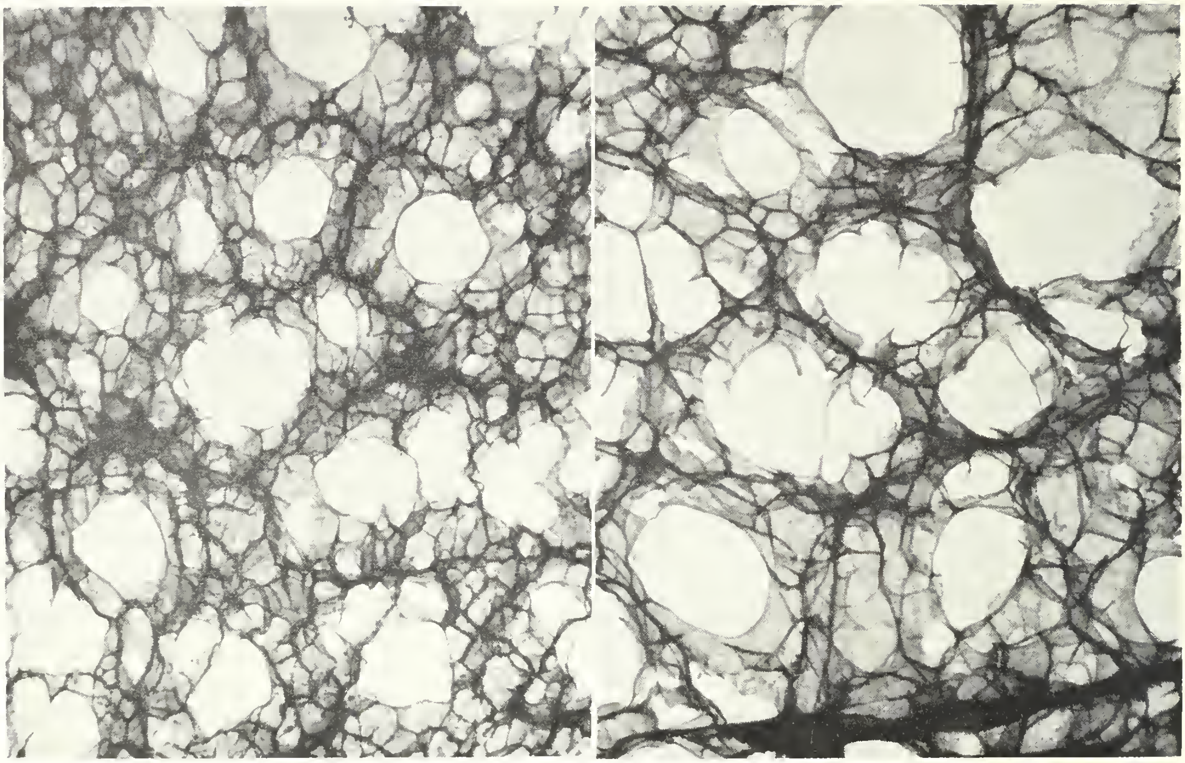

Fig. 1. Appearance at 30× of thick (280 μ) sections from 2 lungs on which detailed measurements were made. (left) Lung of 26-year-old normal male. (right) Lung of 82-year-old male with duct ectasia

Wright;[3] it then was sliced into 1-cm., whole-lung sections. The sections again were x-rayed.

5. The lung sections then were examined morphologically by means of thin (10μ) and thick (400μ) sections of various representative parts of the lung stained with 5 different stains. In addition, all surfaces of all sections were examined, both grossly and by low-power microscopy, for evidence of departitioning and fenestration.[4]

6. Sections of the main bronchi from the contralateral lung were studied for evidence of chronic bronchitis.

7. Pertinent clinical information was obtained from the chart and was verified and amplified by letters of inquiry to the nearest of kin and to the referring physicians. Chest x-rays and electrocardiograms were reviewed.

Finally, after all this material had been gathered, it was presented by the various members of the team at a conference on each case for final correlation of clinical, physiological, and pathological information.

Some months after the beginning of this study it became apparent, especially in the 400μ sections, that a change quite distinct from emphysema or chronic bronchitis was being noted in some lungs. This change consisted of a fairly uniform enlargement of the inside diameter of alveolar ducts and respiratory bronchioles in the lungs of elderly persons. The appearance of this change, as compared with the normal alveolar duct, is shown in figure 1.

To define this change quantitatively we have made micrometric measurements as follows: Sec-

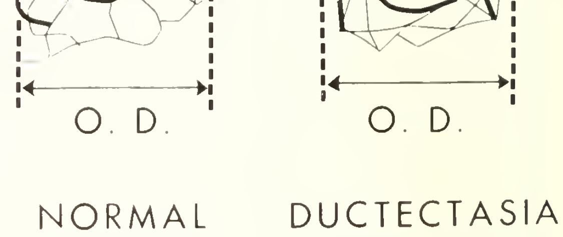

Fig. 2. Modified camera lucida drawings of typical alveolar ducts in focus at which measurements of inside and outside diameter were made. Note how only part of helical inner edge of normal duct is in clear focus (heavy line).

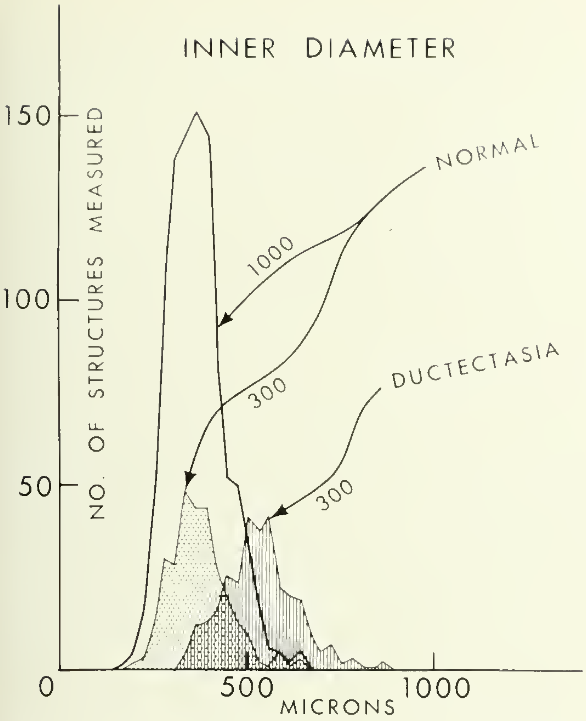

Fig. 3. Frequency of finding inner diameters of various sizes in first 300 normal measurements, first 1,000 normal measurements, and 300 measurements made in duct ectatic lung.

tions about 1-mm. thick and 5 sq. cm. in area were cut by hand parallel to the surfaces of coronal slices of formalin-fume fixed lungs. An eyepiece micrometer was used, and 100 structures in each of 10 sections from 1 typical normal lung of a 26-year-old male and 25 structures in each of 12 sections from 1 typical abnormal lung of an 82-year-old male were measured.

The inner edge of the alveolar duct and of the respiratory bronchiole, as seen in thick sections of lung tissue fixed at full inflation, appears as a semicircle or semiellipse formed by a half turn of a 1.5-turn helix, as shown schematically in figure 2. In the normal lung, the helical angle is such that about a half turn of the helix may be seen in focus at low power (magnification 100×). In a slice of lung tissue 1-mm. thick and approximately 5 sq. cm. in area, about 100 ducts can be found. No measurements were made on structures which were obviously alveolar sacs, and no structures were omitted which satisfied the above criteria of orientation.

After bringing such oriented ducts into focus, the eyepiece micrometer was rotated so that we could measure the distance between the inner edges and between the outer edges of the alveolar septa subtending the lumen of the respiratory bronchiole or alveolar duct. Collinear measurements were made, that is, along a single line transecting opposite inner edges. Thus, the inner diameter was an axis of the semiellipse (though not necessarily its longest axis). The outside diameter was measured along this same line.

It frequently became necessary to forego the above criteria of orientation in selecting the structures to be measured in the abnormal lungs. The inner edges of the septa formed closed rings rather than helices and could be brought entirely into focus in one plane or undulated into and out of the optical plane. Collinear measurements again were made at one setting of the optical plane and micrometer but without the orientation provided by the semiellipse, except when this was possible.

In order to study this change as an isolated finding in the bulk of our material, we resurveyed the 262 specimens. We first excluded 116 lungs with more than 25% of their cut surface showing evidence of emphysematous departitioning of any type. The remaining 146 lungs were then carefully surveyed (but without actually making micrometric measurements) for the presence or absence of the change described.

RESULTS

Frequency diagrams of the micrometric measurements made on the 2 representative lungs are shown in figures 3, 4, and 5. A statistical evalua-

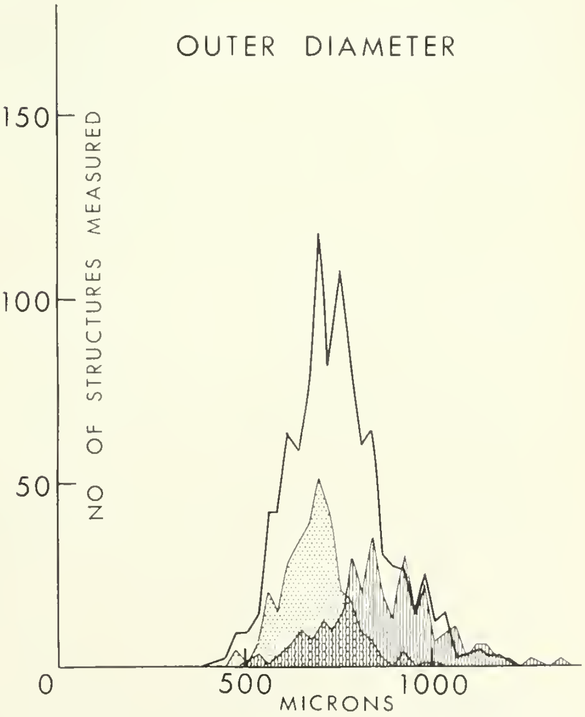

Fig. 4. Frequency—outer diameter size diagram. Shading as in figure 3

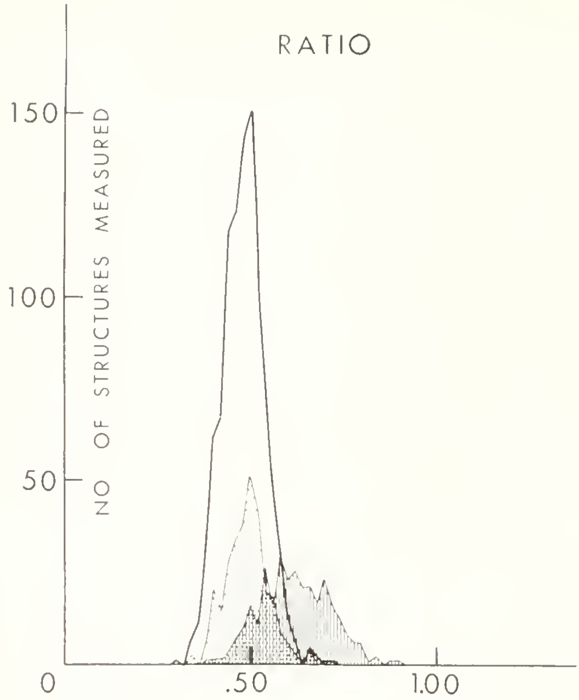

Fig. 5. Frequency–ratio of inner to outer diameter diagram

tion of the data is given in table 1. In short, the ducts enlarge at the expense of their surrounding alveoli which become shallower and appear to provide a reduced surface for gas exchange.

Most of the 146 lungs were studied by all 7 techniques described above. In no lung showing duct ectasia was abnormal postmortem airflow or airway collapse demonstrable. None showed evidence of chronic bronchitis by postmortem bronchography or by morphological study.

The postmortem lung volume measured in the inflated state by water displacement[5] was found to be moderately in excess of the total lung capacity as predicted in life in duct ectasia, as compared with the normals.

Duct ectasia was not associated with the quantity or localization of black pigment found in all adult human lungs.

Review of the clinical information available showed no evidence of symptoms of chronic cough, expectoration, or dyspnea on exertion not caused by an accompanying heart condition. None had large, bright, avascular lung fields or a barrel-shaped chest by physical examination or x-ray. None had suppressed breath sounds or prolonged expiratory breath sounds. The cigarette-smoking histories of subjects with duct ectasia were no different than those obtained from subjects not showing these findings.

The only striking correlation found was the increasing incidence of duct ectasia with age (Table 2).

When we compared the morphology of centrilobular, panlobular, or end-stage emphysema with our 63 patients with duct ectasia, certain important differences were noted. In duct ectasia, a generalized enlargement of alveolar ducts and respiratory bronchioles can apparently reach an advanced stage without the appearance of fenestration or departitioning. Duct enlargement is often seen in emphysema but tends to be irregular in degree and distribution. Normal ducts are frequently seen in patches of preserved parenchyma adjacent to severely damaged tissue. Although alveolar pores are seen in duct ectasia, these are not more numerous or larger than those seen in normal young lungs. Finally, in duct ectasia, the abnormality appears first in the upper lungs and, when present, is almost always most severe in the upper lungs, while panacinar emphysema seldom shows such a predilection for the upper lobe.

DISCUSSION

Terminology. The moderate uniform enlargement of the air spaces often seen in aged human lungs has been described by several modern pathologists,[6–10] each using somewhat different terms. They agree that the aging lung shows dilation of the duct system without "destruction." The latter term generally is used in referring to structures showing a distinct breach of continuity.[9] We prefer to avoid the term destruction because of its pathogenetic implications; we prefer to use the words "departitioning"

TABLE 1
DUCT DIMENSIONS IN REPRENTATIVE CASE OF DUCT ECTASIA VERSUS THOSE IN YOUNG NORMAL LUNG

	Mean ± S.D. (μ)*				
Measurement	*Normal*	*Duct ectasia*	*Difference of the means*	*S.E.† of the difference*	*No. of structures measured in duct ectasia in excess of a 95% of 1,000 normal structures*
Inner diameter	364 ± 76	529 ± 99	165	125	63.4%
Outer diameter	756 ± 127	866 ± 152	110	198	16.3%
Ratio	47.6 ± 57%	61.6 ± 9.2%	14.0%	10.8%	67.0%

*S.D. standard deviation; †S.E. standard error.

TABLE 2

FREQUENCY OF ALVEOLAR DUCT ECTASIA BY AGE: 146 CONSECUTIVE CASES WITH LESS THAN 25% OF ENTIRE LUNG SHOWING DEPARTITIONING (I.E., EMPHYSEMA).

Age group	*Cases studied*	*Duct ectasia present in*	
		No.	*%*
<40	24	0	0
40-49	16	2	13
50-59	17	7	41
60-69	42	25	60
70-79	31	16	52
80+	16	13	81
Total	146	63	43

or "fenestration" as the hallmarks of emphysema, since the precise cause of these changes is not yet known.

Heppleston and Leopold[9] have pointed out that the enlarged alveolar ducts may or may not be related to emphysema and conclude that "it is perhaps better to avoid the term 'senile emphysema.'" We agree with this, and we have proposed the term "duct ectasia" for the type of enlargement described in this paper because it is a simple descriptive term devoid of pathological or pathogenetic implications. The qualifying adjective "alveolar" is omitted because the change involves respiratory bronchioles as well as alveolar ducts.

Quantitation. Heard[7] describes how an experienced pathologist can estimate the age of a patient at death by deciding whether or not the pulmonary air spaces can be seen from a distance of an elbow's length, an arm's length, or beyond. This is a noteworthy first step in quantitating morbid pulmonary parenchymal changes. Indeed, we still find such naked-eye measurements invaluable for classifying postmortem lungs.[11]

In this paper we have used systematic micometry in 2 typical lungs. We have not found any strictly comparable data in the literature; the detailed morphometric studies of Weibel[12] do not deal with the inner and outer diameters of the alveolar ducts per se.

Our data show that both the inner diameter (ID) and the ratio of ID to outer diameter (OD) were statistically significantly increased in 1 typical case of duct ectasia, as compared with a healthy, young person. The 2 lungs studied were inflated to an approximately identical extent, as judged from our experience in fixing over 200 lungs in inflation by using the criterion of fissure approximation.[13] Thurlbeck[10] has stressed the importance of the degree of inflation in making such studies.

Geometrical and topological considerations. The normal alveolar duct of youthful lungs typically appears as a 1.5-turn helix. This helix seems to start or end as a closed ring similar to the diaphragm ring of Orsos.[14] Whether the change to duct ectasia is achieved by stretching or condensation of the helix or whether the closed ring is the chief remaining structure after the helically disposed alveolar septa have retracted in duct ectasia cannot be decided at this stage of our investigations. Even if the change is shown to be caused by helical distortion or septal shrinking, it appears to be a geometrical rather than a topological change, since in duct ectasia no more breaches of continuity can be seen than in the lungs of young normal adults.

Clinical and physiological considerations. Some observers appear to believe that duct ectasia may be an early stage of panacinar (or panlobular) emphysema. We believe, on the contrary, that duct ectasia and panacinar emphysema are 2 separate entities, not only distinguishable on morphological grounds but also quite different clinically and physiologically. Duct ectasia is found mostly in people who die past the age of 60, long after most patients with emphysema have become symptomatic. Duct ectasia is not associated with dyspnea or cough during life nor with abnormal airway collapse as observed pre- or postmortem. On the other hand, the combination of open airways and foreshortened alveolar walls seen in duct ectasia may well explain why the diffusing capacity in healthy persons decreases with advancing years, without any apparent accompanying effect on the right heart or pulmonary circulation.[15]

SUMMARY AND CONCLUSIONS

1. Lungs obtained from 262 postmorten examinations over a four-year period were fixed in inflation, sliced into sections approximately 1-cm. thick, and studied grossly and microscopically for any evidence of abnormality.

2. Excluding those patients with more than 25% of the lung involved with the departitioning of emphysema, enlargement of alveolar ducts and respiratory bronchioles, with concomitant reduction in the depth of their surrounding alveolar sacs, we discerned a change which we have labeled "duct ectasia" in 43% of the remaining 146 patients.

3. The mean internal diameter of alveolar ducts in 1 young normal lung was $364 \pm 76\mu$; in one representative lung with duct ectasia, the mean internal diameter was $529 \pm 99\mu$.

4. Our youngest patient with duct ectasia was

age 45 at death. The change was uncommon in those dying in their 40's and 50's, but occurred in about 50% of those dying in their 60's and 70's and has occurred in 81% of our subjects dying past 80 years of age.

5. Duct ectasia was not associated with any abnormal clinical symptom, sign, or radiographic finding.

6. Duct ectasia does not appear to be an early manifestation of panlobular emphysema.

This paper was supported in part by U.S. Public Health Service grants HE-06067-02 and A1004152.

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OPERATION FOR PITUITARY ADENOMA is least likely to succeed in patients with an excessively enlarged sella turcica. In such instances bleeding from the depths of the sella may be difficult to control. The tumor, underneath and behind the chiasm, is difficult to remove without injuring the optic nerves and chiasm. A sella is considered excessively enlarged when it measures 2.2 cm. or more in the anteroposterior dimension and 1.7 cm. or more in depth. Mortality and morbidity rates and preservation or improvement of vision were markedly better among 81 surgical patients with pituitary adenoma and normal to moderately enlarged sellas than among 36 patients with excessively enlarged sellas.

HENDRICK J. SVIEN, M.D., W. CHARLES KENNEDY, M.D., and THOMAS P. KEARNS, M.D., Mayo Clinic and Foundation, Rochester, Minn. J. Neurosurg. 20:669-674, 1963.

PRIMARY LYMPHOSARCOMA OF THE STOMACH has a five-year survival rate of about 40%, whether treated by surgical removal, lymph node dissection, or irradiation. With intestinal disease the five-year survival rate is 22%. Since resection of multiple organs has a high mortality rate, irradiation is used alone if disease has spread to adjacent organs or lymph nodes. Even when the tumor is resected, postoperative roentgen therapy is advisable because of the diffuse nature of the disease.

With surgical resection of primary lymphosarcoma of the stomach, 9 of 23 patients have survived five to twenty-two years, and 4 are alive without recurrences four months to four years postoperatively. No irradiation was given to 7 of the 9 long-term survivors. Whether disease had extended to adjacent organs or not seemed to be a more important prognostic factor than lymph node involvement. Palliative operations were performed in 3 patients without significant evidence of prolonged survival. With lymphosarcoma of the intestines, 3 of 12 patients have survived five years or longer and 2 have been asymptomatic for three and four years.

DEMETRE M. NICOLOFF, M.D., LAWRENCE B. HAYNES, M.D., and OWEN H. WANGENSTEEN, M.D., University of Minnesota, Minneapolis. Surg. Gynec. Obstet. 117:433-437, 1963.

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The College Health Doctor

JOHN H. ARNETT, M.D.
Philadelphia

On looking back over my forty-two years of work with college students I recall with appreciation many devoted associates in the field of college health. Not least among them was Dr. Harry Lees, whose office in the University of Pennsylvania was a five minute walk from mine at Drexel. I took my chest problems to him and I was generally rewarded, not only with wise counsel but with a case report or two from his files illustrating the triumph of science over the tubercle bacillus. His joy over the salvage of one "lost sheep" was only equaled by his zeal in protecting the other "ninety-and-nine" against the ravages of the enemy. The college student lost a valiant defender with the passing of Harry Lees.

The field of college health offers almost unlimited possibilities for research. A few studies made at Drexel may serve as examples: In 1933 Ennis and I[1] published a study of dental infection as revealed by "full mouth" x-rays of 883 students. We concluded that the prevalent concept of "focal infection" as a cause for systemic disease in youth was exaggerated. Our x-rays revealed dental granulomas, sometimes known as "blind abscesses," in 175 (or 19%) of our entering students. Such granulomas were regarded as possible "foci of infection," yet we found no greater incidence of rheumatic fever, chorea, or heart trouble in the past history of the granuloma group than in the others—nor did deviations from the normal electrocardiogram occur more frequently. Albuminuria was somewhat more common, but not enough so to exceed thrice the standard deviation. We were thus disillusioned regarding the importance of granulomas as a threat to health in our college students. On the other hand, we were surprised to find that 83% of the students had one or more carious teeth. Other abnormalities were also found.

Two years later, Wenrich, Stabler, and I[2] published a stool survey of 1,060 entering students for intestinal protozoa based upon a single specimen secured without a laxative. As many as 33% of the students were found to harbor one or more varieties of protozoa. E. histolytica was detected in 4.5%. Again we met with a surprise in that diarrhea was no more common in the E. histolytica carriers than in the others. Incidentally, the students coming from nearby New Jersey, where much of the water came from wells, had a much lower incidence of infestation then those coming from Philadelphia. This led us to speculate on the efficacy (or lack of it) of filtration and chlorination for removing amebic cysts from river water. I might add that our further surveys of Philadelphians in older age groups revealed a considerably higher incidence of symptomless E. histolytica infestation and that treatment with carbarsone, chiniofon, or Vioform was quite successful in removing these parasites.

Another field offering unique opportunities to the college health physician is that of the effects of sports and exercise on unconditioned muscles. For instance, a strenuous series of push-ups or squats, without previous conditioning, may result in the passage, for several days, of brown urine containing numerous dark-granular casts, albumin, and hemoglobin—but not, in our experience, myoglobin or erythrocytes. During this time the abused muscles remain stiff and painful. Gardner and I[3] speculated upon the physiochemical causes for this phenomenon, but the final solution awaits further investigation.

Infectious mononucleosis has heretofore been an enigma to the college health physician. He

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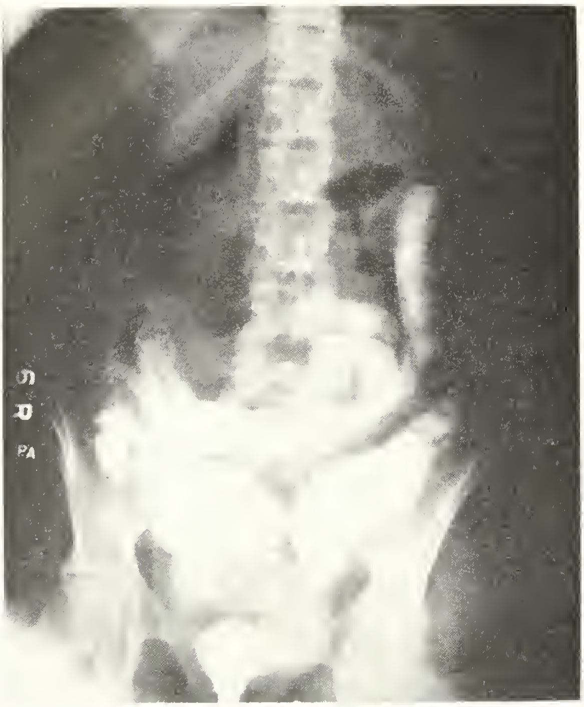

B. Z., aged 21. Colon ragged from sigmoid to cecum. Ulcerations and irregularity of the mucosal surface. Roentgenological appearance compatible with ulcerative colitis. (Courtesy of Drs. J. Fong, A. W. Shriver, and J. F. Maurer, of Greensburg, Pa.)

has wondered whether the observed symptoms are explicable on an allergic basis, and even whether they represent a disease entity at all, or are simply the lymphatic and lymphocytic response to many viral infections. Evans[4,5] gives, what I believe is, the answer; infectious mononucleosis is comparable to poliomyelitis in that it has a high incidence of infectiousness in childhood although it frequently goes unrecognized. The college health physician, on the other hand, only sees the occasional individual who has not already had the disease. Evans believes that "the heterophile responses may be an age-conditioned host response of the young adults and may reflect a particular phase in the development of our lymphatic and/or immunological mechanism."[5] This would explain heterophile negativity in childhood. Even in the college age group we frequently encounter cases which have the classical signs and symptoms of infectious mononucleosis, but are heterophile negative.

Over the years from 1934 to 1962, we have charted the occurrence of certain findings in our station-to-station type of examination of the entering students. We find that although there are variations from year to year in the percentage of students in whom hypertension, overweight, underweight, defective vision, and heart murmurs are found, no definite trends are observable.

I cannot leave the subject of the college health physician without referring to a few of the cases which have added interest and color to our student health service: the girl from Haiti who, while drinking a soft drink, belched up a large, pinkish hard worm, pointed at each end; the girl who complained of pain just above the knee, was found to have sarcoma, had a thigh amputation, got married, and has two children; the married girl, who after intercourse was stricken with faintness and abdominal pain referred to the shoulders, whose peritioneal cavity was found full of blood from a ruptured ovarian cyst; the boy who got a severe jolt from a tumble on a concrete floor, fainted three days later, and was found to have a bleeding duodenal ulcer and an intervertebral disk lesion; the boy who developed what appeared to be laryngeal obstruction, but whose negative laryngoscopy was followed by subcutaneous emphysema of the neck and classical signs of asthma; the quiet little hypothyroid boy with greasy yellow dandruff, who gained 14 lb. and grew 1¼ in. in eleven months on a daily dose of 130 mg. of thyroid; the boy who became comatose from a bleeding hemangioma within his brain, but who slowly recovered spontaneously, married and has now two little girls; the girl with emotional problems and ulcerative colitis who put on weight, and recovered from her diarrhea and emotional problems on a diet of protein, fat, and bananas; the boy who was too indifferent to our own and his parents' admonitions to take his polio shots, but whose death led us to make such immunizations routine in all incoming freshmen; and the freshman who brought with him a note saying, "This is my patient and I don't want anything done to him."

CONCLUSIONS

To paraphrase Gilbert and Sullivan: "Taking one consideration with another the physician's life is quite a happy one" (if he is fortunate enough to have a good student health nurse at his right hand!).

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Complete Interruption of the Aortic Arch

Report of a Case

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Cleveland

COMPLETE INTERRUPTION of the aorta at the level of the isthmus is an unusual cardiac anomaly. Concepción Ruiz Villalobos and associates[1] in 1961, in a review of the world literature, found only 40 cases. An additional 7 cases have been reported by Mehrizi and Morrish.[2] The rarity of this developmental defect lies in the completeness of separation of the ascending and descending aorta as contrasted to the more common coarctation of the aorta in which a connection is maintained between these segments. With complete separation of the aorta at the isthmus, the ascending aorta terminates as the major branches of the arch. The descending aorta receives blood through a patent ductus, the pulmonary artery arising normally from the right ventricle (Fig. 1). As in coarctation, duration of life depends in large part on the collateral circulation between the separated segments of the aorta, and upon shunts. Although reparative surgery has been attempted, results are poor, largely because of the presence of other cardiac defects. The purpose of this paper is to report a case of this anomaly, in the interest of facilitating antemortem diagnoses and possible surgical correction.

REPORT OF A CASE

A three-day-old female infant was brought to the Cleveland Clinic Hospital with a history of having suddenly become cyanotic, but with spontaneous relief before the time of admission. The patient was a full-term infant delivered without complication. The infant weighed 3,100 gm., had a pulse rate of 200, and a rectal temperature of 103° F. The patient was not cyanotic, but was lethargic, flaccid, and appeared generally depressed. The neck veins were flat, and the lungs were clear. Cardiac examination disclosed a grade 2 systolic murmur. The edge of the liver was palpable 3 cm. below the costal margin. The clinical impression was that of congenital heart disease, type not defined. A roentgenogram of the chest showed evidence of generalized cardiac enlargement, predominantly of the right ventricle (Fig. 2). An electrocardiogram was reported as normal (Fig. 3). Supportive measures were instituted, but the patient suddenly died.

At autopsy significant findings were limited to the heart and the great vessels (Figs. 4 and 5). The heart weighed 22 gm. (normal, 20.1 gm.[3]). The ascending aorta was hypoplastic, averaging 1.2 cm. in circumference. The vessel arose in its normal anatomic position from the left ventricle and ended as the innominate and left carotid arteries. The aortic valve was bicuspid and 1.0 cm. in circumference. The pulmonary artery arose normally from the right ventricle and was dilated to 2.5 cm. in circumference (Fig. 5); 0.5 cm. from its origin the left and right pulmonary arteries arose and followed their usual courses to the lungs. The pulmonary artery was continuous with the patent ductus arteriosus, the latter being only slightly reduced in circumference in this region to 1.2 cm., after which the descending aorta became a continuance of the wide ductus arteriosus and followed a normal course in the usual position on the left side (Fig. 5). The pulmonary valve was normal. The left subclavian artery arose from the descending aorta immediately after its origin at the ductus (Fig. 5). The right and left ventricular walls each were 0.5 cm. thick, and showed flattening of the trabeculae and rounding of the apices. The tricuspid and mitral valves were normal. The foramen ovale was probe-patent. There was a defect 0.4 cm. in diameter in the membranous portion of the left interventricular septum. A definite ridge of tissue was present (Fig. 4) between the base of the pulmonary artery and the aorta, and gave the impression of a slight overriding of the pulmonary artery with associated compromise of the aortic outflow tract. The pulmonary venous return and the origins of the

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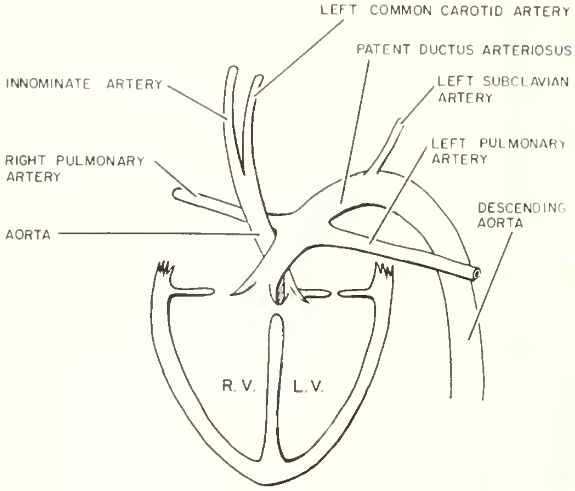

Fig. 1. Diagrammatic representation of the anomaly in the three-day-old infant

coronary arteries were normal. Microscopic examination revealed only congestion of the viscera, with no other significant histopathologic abnormalities.

DISCUSSION

Absence of the arch may be the rarest anomaly of the aorta. In the majority of cases there is association with other cardiac defects such as ventricular septal patency, hypoplastic ascending aorta, and anomalous origin of the subclavian vessels.[4,5] In fact, it has been suggested that the rather consistent occurrence of the triad of congenital absence of the aortic arch, patent ductus arteriosus, and interventricular septal defect may be considered a syndrome.[5] The defect common to all cases is complete interruption of the aorta.

The exact location of the division in relation to the branches of the aortic arch is the basis for Celoria and Patton's[6] lucid classification into three types of the defect. In type A, the separation occurs between the left subclavian artery and the ductus arteriosus (similar to that in infantile coarctation of the aorta); in type B (the case reported here) the division is between the left subclavian and left common carotid arteries; and in type C, between the innominate and left common carotid arteries.

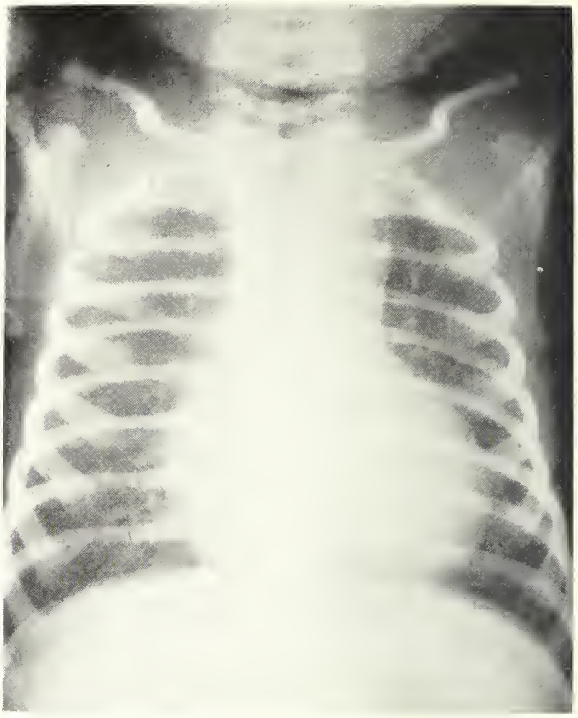

Fig. 2. Anteroposterior chest roentgenogram with evidence of predominantly right ventricular enlargement

Type B defects can be attributed to defective formation of the fourth left branchial arch, which forms the transverse arch of the aorta. The initiating mechanism could be the altered hemodynamics at the time of aortic arch formation, because of primary faulty migration of the heart, resulting in division of blood flow between the upper and lower portions of the body at an abnormal branchial arch level.[7] This concept, in

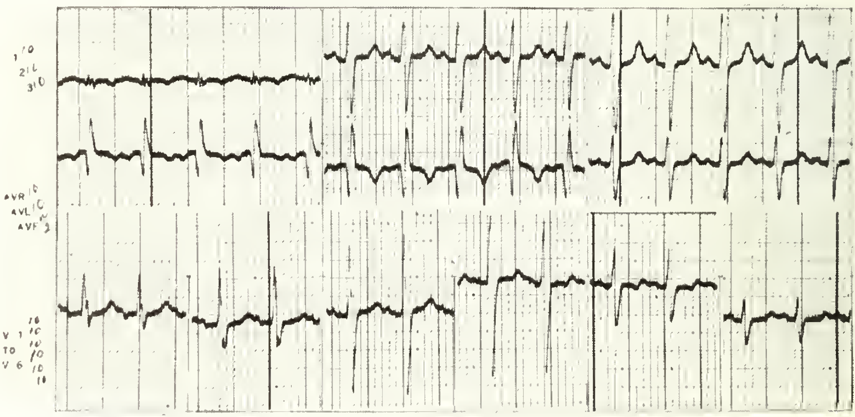

Fig. 3. Electrocardiogram demonstrating tall R waves over right precordium, and right-axis deviation

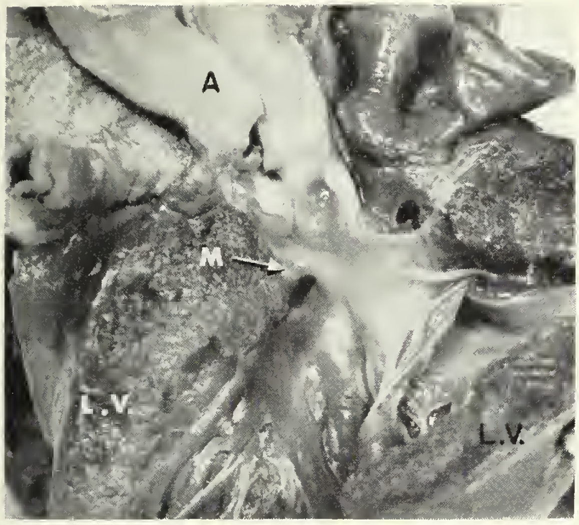

Fig. 4. The heart at autopsy; the left ventricle (L.V.) has been opened. Note the narrowed aortic outflow tract (A) with a muscular ridge (M, arrow) immediately superior to the septal defect.

itself, fails to explain the occurrence of complexes of defects that certainly are not solely caused by defective aortic arch formation. Overriding of the pulmonary artery, possibly because of a ridge formation in the aortic outflow tract, would lead to decreased blood flow and subsequent hypoplasia of the ascending aorta. The almost invariable presence of interatrial and interventricular defects, in association with the arch defects, negates the thesis that defective branchial arch development is the sole factor, and has been suggested as the primary abnormality that produces decreased leftsided blood flow in the fetus.[6] In all cases, the sixth branchial arch (ductus arteriosus) persists as the junction between the pulmonary trunk and the descending aorta.

Intrauterine hemodynamics would be little affected by the absence of the arch, as blood flow through the isthmus is sparse. The major outflow of the left ventricle is distributed by the vessels of the arch of the aorta, and the right ventricular flow is diverted to the general circulation through the ductus arteriosus. This pattern of distribution explains the failure of development of a prenatal collateral circulation between the divided segments of the aorta in preductal coarctation or preductal interruption of the aorta, since both the upper and lower portions of the body are supplied with oxygenated blood. At birth the hemodynamics changes drastically, as only venous blood is supplied to the systemic circulation, unless a significant left-to-right shunt is present, or the pulmonary artery overrides the aortic outflow tract. The right ventricle must attempt to maintain systemic pressure despite a greater volume of blood than that in the left ventricle. As a result, right ventricular failure occurs early and death ensues, usually within 24 hours. Surprisingly, some persons do survive into childhood, as the result of left-to-right shunts with collateral circulation between the divided segments.

The effect of a muscular ridge in the outflow tract of the left ventricle is discussed by Beeu and associates,[8] an anatomic anomaly similar to that existing in the case described in this report. This ridge would divide the outflow of the left ventricle through the septal defect and through the narrowed aortic outflow tract, with the pulmonary artery receiving the blood flow from both ventricles (Fig. 4, M, arrow). This condition conceivably would lead to the left-to-right shunt at the ventricular level in the fetus, with pulmonary dilatation and aortic hypoplasia ensuing from the altered blood flow. The entire defect in question might then be considered a complex of "ventricular septal defect, biventricular origin of the pulmonary trunk and subaortic stenosis."[8]

When there is cyanosis of the lower part of the body it is a significant sign; however, this sign is absent in many patients,[2,4,9] as it was in the patient of this report. The size of the patent ductus, the occurrence of significant collateral circulation, and the effect of the biventricular

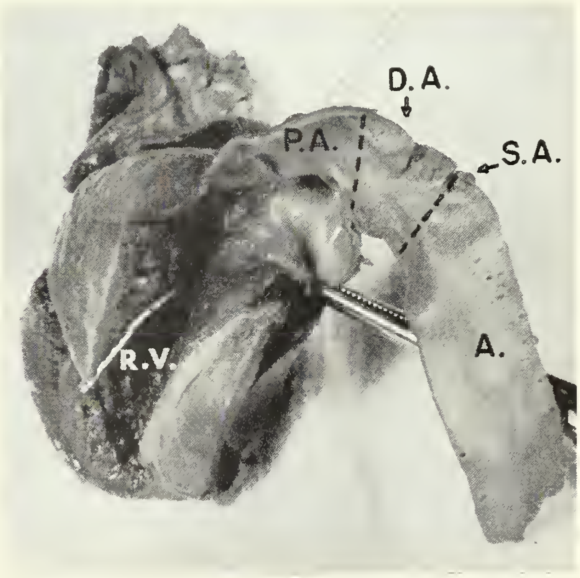

Fig. 5. The heart at autopsy; probe lies in the right ventricle (R.V.) and passes through the septal defect. Note origin of pulmonary arteries (P.A.). Dotted lines delineate roughened endothelium of the ductus arteriosus (D.A.). Left subclavian artery (S.A.) originates from descending aorta (A).

origin of the pulmonary artery will determine the amount of oxygenated blood that reaches the extremities, and will be the factors controlling the distribution of cyanosis. Unilateral clubbing and cyanosis of the fingers of the left hand are highly suggestive of the anomaly.[10] There should be no decrease in pulsation in the lower extremities, as the blood flow is not obstructed. Right-side cardiac enlargement and failure frequently are present.

SUMMARY

A case of the absence of the normal aortic arch, with patent ductus arteriosus, biventricular origin of the pulmonary artery, and interventricular septal defect is presented. The anomaly resulted in the death of the female infant three days after birth. The clinicopathological and physiological aspects are briefly discussed.

The author wishes to express his gratitude to Dr. W. C. Sheldon, Department of Pediatric Cardiology and Cardiac Laboratory, under whose care the patient was admitted; and to Dr. William A. Hawk, Division of Pathology, for his helpful advice.

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SCLERODERMA OF THE ESOPHAGUS causes esophageal weakness and impaired coordination by atrophy and dilation of smooth muscle, not by direct pressure of sclerotic proliferating collagen. The wall of the esophagus is flaccid and atrophied rather than fibrotic and rigid. The disease has little or no effect on striated muscle, and normal striated muscle fibers appear in the midst of atrophied smooth muscle. Histological findings do not always reflect physiological and pathological changes. Near-normal motility in upper portions of the esophagus corresponds to the finding of striated muscle, while weakened contractions in the same segments may or may not be associated with histologically evident smooth-muscle atrophy. Collagen in the stroma of muscle layers and submucosa is normal. Postmortem studies were carried out on the esophagi of 10 patients with scleroderma.

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Section on PAIN and DISTRESS

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Misery in the Head

It is enough to feel bad in the chest, abdomen, or extremities, but when one's head is out of order one feels as though he had been put out at home plate. Almost everyone has experienced a headache of some kind. Dr. Ryan has spent much time and effort on the problem of headache and his explanation of the nature of tension headache is most welcome. Now one can know what class of headache he has, but of even more importance, the physician can recognize the types of headache his patients have.

Dr. Williams brilliantly discusses head and neck pain associated with Ménière's disease. He states that such pain is likely to be due to vascular dysfunction. This conclusion is of great value for it comes from one who is wise from long experience in the area of Ménière's disease. His paper is a real contribution to all who suffer from the condition, or who have patients who do. It will be a pleasure to many like myself who have tried to help such patients with alcohol block of the stellate ganglion with some success, but who occasionally see untoward side effects due to the technical difficulty of preventing alcohol spread toward the brachial plexus. I am sure Dr. William's theory is correct.

At times in the management of pain, the physician could use a consultation with a dentist or an oral surgeon. Dr. Gores points out in his paper how very valuable such a cooperative consultation can be. We could profit from more joint efforts by physician and dentist on pain problems of the head.

A discussion of pain problems of the head by readers of this Section on Pain and Distress could be most helpful and is invited.

JOHN S. LUNDY, M.D.

THE INTERNATIONAL SYMPOSIUM ON PAIN will be held at the Henry Ford Hospital in Detroit, October 21 through 23.

A New Hypothesis of Vascular Dysfunction Linking Certain Pain Syndromes of the Head and Neck with Meniere's Disease

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MULLER[1] and Parresius[2] included Ménière's disease, migraine, acrocyanosis, Raynaud's disease, erythrocyanosis cutis, chronic simple glaucoma, and a few other disorders in the classification of the vasomotor neuroses.

The basis of this classification was the presence of an abnormal reaction of the capillaries in certain areas of the skin, particularly the nail beds, examined by the method of Lombard.[3] Parresius found an inherited tendency for the development of the capillary abnormality, and he also found that in these abnormal areas the capillaries would respond with the picture of the slow stage of shock to stimuli which would not produce such a reaction in areas where the capillaries were normal.

Brown[4] and Redisch and Peltzer[5] confirmed these findings of Müller and Parresius and also the existence of a related group of conditions, the "vasomotor neuroses."

In his truly monumental work on the human capillaries in health and disease, Müller described the condition of the capillaries as the "spastic atonic capillary state." In certain individuals he found an inherited tendency for capillaries in certain regions, scattered but not widely separated in the skin, to develop a spastic condition in the arterial limb of the capillary loop with a varicose dilation of the venous portion. This led to stasis, intravascular agglutination, injury to the capillary endothelium, increased capillary permeability, perivascular edema, and the release of histamine and other toxic substances. Müller's findings were largely ignored and his hypothesis was neglected, when it was found that histamine in the tissues was so rapidly destroyed by diamine oxidase and by a histamine methylating enzyme that it was not thought possible for it to produce the long-lasting alterations of physiologic function found in the disorders which he and Parresius classified as secondary to the abnormal reactivity of the capillaries in certain parts of the general capillary bed. These disorders involved reactions to stimuli of insufficient magnitude to produce the severe shock type of reaction in the capillary beds of normal individuals. The second discovery that led to skepticism in regard to Müller's findings was that there is no contractile tissue in the wall of the true capillary. Krogh's suggestion[6] that Rouget cells might subserve this function caused controversy for a time, but, with the development of microsurgical techniques, complete absence of contractility in these cells has been convincingly demonstrated.[7]

The discovery of vasoactive chemicals other than histamine and the catecholamines, including the amines, 5-hydroxytryptamine (serotonin), and heparin,[8-10] and polypeptides such as bradykinin,[11,12] made the formation of a reasonable hypothesis as to the physiologic mechanisms of the capillary bed increasingly difficult.

What role histamine might play in the normal physiology of the circulation became an ever greater mystery. The discovery of stored hista-

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mine and the presence of histamine, heparin, and serotonin in mast cells[13] was not especially helpful because none of the substances found could explain all the findings of the stress reaction.

The long-continued labors of Zweifach,[14] however, succeeded in clarifying much of this muddied picture. Zweifach found that all the vessels of capillary size were not capillaries. He discovered the functional unit of the capillary bed to be the thoroughfare arteriole with its own metarteriole, precapillary sphincters, and true capillaries. He termed the group of all the vessels of capillary size in the thoroughfare arteriolar unit "the capillary bed," the entire microcirculation of the body being composed of an almost infinite number of these thoroughfare units, modified as might be required in areas of specialized function but always maintaining the fundamental structure of thoroughfare arterioles, metarterioles, precapillary sphincters, ultimate functioning structures, true capillaries, and finally "muscled" venules.

Zweifach confirmed the fact that the autonomic nervous system had little effect on the capillary bed which he found had a "spontaneous" vasomotion probably controlled by vasoactive chemicals[15,16] released locally according to local homeostatic need.

It was not until Schayer[17,18] furnished convincing evidence that induced histamine is an intrinsic regulator of the microcirculatory system that the observations of Müller could be intercollated with those of Zweifach[14] to form an internally consistent hypothesis. Such a hypothesis would be useful in the clinical investigation and treatment of such seemingly diverse but allied conditions as the histaminic cephalgia of Horton, Ménière's disease, migraine, and myalgia.

The seeming discrepancy between the findings of Müller and those of later observers has been resolved by Seymour.[19] Seymour stated that if the precapillary sphincter remains closed for a prolonged period, the blood may be withdrawn from the capillary by the suction effect of the flow in the metarteriole past its venous end. As this occurs, the capillary does not collapse but is filled by colorless tissue fluid flowing into the lumen as the blood flows out. The appearance of the capillary field at this stage has in the past been interpreted as a widespread "constriction" of the capillaries, but observation of the vessel walls shows that this is not the case.

The dilation of the venous portion of the capillary loop, a dilation which Müller found often reached the proportions of varicosity, is explainable by the relaxation of the smooth muscle fibers in the "muscled" venules.

Chemical control of microcirculation. The well-supported hypothesis of Schayer[20] states that the microcirculation has a nearly autonomous control mediated by the formation of histamine from a local store of histidine by the action of histidine decarboxylase, induced by local homeostatic demands. Clinical observation suggests a further hypothesis, that this mechanism could be disordered in an isolated area by some unknown autonomic stimulus so that it might produce excessive amounts of histamine. This in turn could produce the recognized changes in the microcirculation which lead to the clinical pictures of certain syndromes about the head and neck.

Therefore, it seems possible to categorize certain of these syndromes on the basis of a similar underlying physiopathology. The therapeutic advantages of such classification, if logical and valid, would seem to be obvious.

The outstanding clinical expression of these microcirculatory disorders is pain. Lermoyez[21] pointed out that since both the acoustic and equilibrial divisions of the eighth cranial nerve were modified sensory nerves, it was logical to consider vertigo the "pain" of the equilibrial division and tinnitus the "pain" of the acoustic division. It would seem reasonable, therefore, to include conditions such as vertigo and tinnitus, which seem to be on the basis of disturbance of the microcirculation from excess histamine, in a single "phylum" with headache.[22] This suggestion particularly receives support from the studies on the microcirculation by Müller, Parresius, and Zweifach.

Schayer[20] stated, "Evidence is presented that mammals possess an inducible form of histidine decarboxylase associated anatomically with the microcirculation which synthesizes histamine at a rate determined by the need of the tissues for blood under various environmental conditions. Some supporting evidence is: (a) Microcirculatory changes and histidine decarboxylase activation follow the same stimuli, occur at the same anatomic sites, have parallel time relationships, and are both essentially autonomous, (b) histamine can reproduce all the microcirculatory changes of the slow phase of inflammation, (c) the inducible enzyme has been found in every tested vascular tissue of the mouse, (d) such diverse stimuli as increased room temperature, infection, and injection of reticulo-endothelial system activators elicit changes in histidine decarboxylase activity consistent with microcirculatory homeostasis, (e) certain poorly understood observations on the glucocorticoids, for example, their vasoconstrictive action and the increased need for them during inflammation or infection, are compatible with the existence of a vasodilator substance, associated with small blood vessels, which may be produced at an increased rate either locally or systemically."

Schayer further stated that induced histamine differs markedly from released histamine in mechanism and site of mobilization, time of action, and other characteristics.

Dale,[23] Lewis,[24] and others had pointed out that histamine seemed ideally suited for control of blood flow in the smallest vessels. Lewis had firmly established that released histamine was responsible for rapidly developing inflammation (the triple response) in human skin. Furthermore, he thought that his observations on slowly developing inflammation were entirely comprehensible, in terms of histamine mediation, provided there was a mechanism for slow but continuing release of histamine. Similarly, numerous workers[9] were so impressed with the capillary actions of histamine that it was widely favored as the substance causing circulatory failure in shock.

However, as knowledge of bound histamine advanced, as its storage in mast cells and rapid release were established, and as antihistamines and histamine liberators were developed, it was thought, in the light of these newer physiologic discoveries and because a mechanism for a varying but continuous release of histamine had not been discovered, that a primary role for histamine in these various physiologic and pathologic situations could not be supported.

The therapeutic effect of histamine began to be received with skepticism; for, without a supporting theory, some observers were unable to credit the facts observed by their own senses. It was even stated that there was no reason to implicate histamine in the etiology of the headache first clearly described by Horton, and the term, "Horton's histaminic cephalgia," was abandoned for such terms as "migraine variant," "cluster headache," and "petrosal headache."

Now, using new techniques, Schayer[25] has found that a mechanism does exist which produces histamine in a manner exceptionally well qualified to carry out the pathologic and physiologic functions proposed for it by pioneer workers such as Dale and Lewis. It supports the therapeutic hypotheses of Brown and Horton and makes tenable the classification of disorders on the basis of the "spastic-atonic state" described by Müller.

After Schayer's work, induced histamine could be expected to dilate smooth muscle of terminal arterioles, venules, precapillary sphincters, and muscled venules and to increase permeability of capillaries to water and to larger molecules. Increasing amounts of locally induced histamine could produce progressive suspension of vasomotion, suppress reactivity to epinephrine, and produce reflex dilation of arterioles, metarterioles, and venules with endothelial damage. As stated previously, the suppression of vasomotion in the face of the dilation of the muscled venules, with an increase of interstitial fluid, according to Seymour,[19] does produce the picture in the capillary bed noted by Müller, but not from true capillary spasm.

Seymour also found that intravenous histamine produces dilation of the arteriole and metarteriole, but unless the drug is present in such concentration that it actually damages the vessel walls, the activity of the precapillary sphincters continues normally.

The dilation of the arteriole and metarteriole results in a rise of pressure which not only serves to fill out the capillary but also results in an increased output of tissue fluid. If, however, there is widespread dilation all over the body following the effect of a high concentration of drug in the bloodstream, a fall of the general blood pressure occurs. Now, one or both of 2 circumstances may eventuate, both of which result in a diminished blood supply to the ear. First, the pressure may fall so low in the arterioles that circulation through the capillary bed is virtually brought to a standstill. Second, all nonessential peripheral fields, the ear included, may be constricted in order to maintain the general blood pressure. This effect, which is mediated through the autonomic nervous system, would involve the arterioles only, because there appears to be no autonomic supply to the contractile elements of the metarteriole; these are controlled by vasoactive chemicals.

The variability in the effect of histamine as a vasodilator to the microcirculation of the inner ear appears to be directly related to the concentration of this drug in the circulating blood.

These facts seem to determine the "critical" therapeutic level for intravenous histamine which Horton found to be present, too small a dose resulting in no clinical effect and too large a dose precipitating symptoms.[26]

It seems probable that a stimulus causing histidine decarboxylase to be produced at a rate far above homeostatic needs in a unit of the capillary bed could produce the clinical picture seen in the disorders characterized as the "vasomotor neuroses" by Brown, even though the hypothesis of capillary constriction produced by abnormal autonomic impulses of the cholinergic hyperactivity type termed by Petersen[27] "autonomic dysintegration" or "dysfunction" is no longer tenable. It is possible that a substance blocking diamine oxidase could also result in local accumulation of excessive amounts of histamine with a resulting picture as described by Müller and by Seymour, although this is somewhat doubtful since in man there are 2 major routes of histaminic catabolism.

Possible autonomic factor in vasomotor neuroses. In classifying certain syndromes of the head and neck on the basis of an inherited tendency for particular units or unit regions of the peripheral capillary bed to react to certain environmental stimuli with the physiopathologic picture of the slow stage of shock rather than with the normal physiologic response, one must take into consideration clinical features which are not covered by the hypothesis of Schayer: namely, the tendency for these expressions of pathologic physiology to occur unilaterally, to be episodic, and to show a tendency toward a "cluster" distribution in time. The side of the body involved may alternate in repetitions of the attacks, although one side will appear to be preferred above the other, and the site of the capillary region involved tends to remain the same in successive expressions of a given disorder.

It is also a time-honored observation that the vascular system of the skin of the head and neck is strongly influenced by the emotional state of the individual.[28] We are all familiar with the expressions "paling with fear" and "flushing with anger." The vascular system of the head and neck also reacts to a greater degree than does that of other regions to environmental changes. Petersen's work suggests that such a factor as an approaching polar front while still at a distance, through an unknown agency, possibly atmospheric ionization, may produce pronounced effects on physiologic equilibrium.

Petersen pointed out that the terms "autonomic dysfunction" and "disequilibrium" did not refer exclusively to the autonomic nervous system. These terms also refer to changes of ionic balance at cell membranes. This is the whole homeostatic mechanism for the unicellular organism. With increasing cellular elaboration, the organism required the development of the blood and lymph vascular systems to bring metabolites to and to carry wastes from the cell. Chemical secretions from specialized cells were later elaborated to integrate the homeostatic reaction in tissues and organs. The autonomic nervous system was still later elaborated to speed up, integrate, and localize homeostatic reactions. The autonomic system is, therefore, made up of the local reactions at cell walls, the reactions of capillary units, the hormonal biochemical reactions carried by the vessels, and the reactions of the autonomic nervous system. The divisions of the autonomic system are so integrated and poised that a reaction taking place in any one of the components is immediately reflected in the others.

While it seems reasonable to suppose that central, especially emotional,[29] reactions can readily and strongly influence the reactions of the capillary units of the head and neck, it does not seem probable that emotional disturbances are the "*fons et origio mali*" but, rather, that they may act as occasional precipitating factors in a physiologic disorder of a vascular region which has a gene-propelled defect in its reaction to stress of all types.

The tendency toward lateralization in the type of vascular dysfunction we are considering, while it serves as a criterion to distinguish it from other disorders presenting similar symptoms, cannot be explained solely on the basis of a disordered local mechanism because of the alternation of symptoms from a site on one side of the body to a mirror-image site on the other in a subsequent exacerbation. It would seem reasonable to hypothesize a central stimulus. There is evidence which indicates that there are adrenergic and cholinergic hypothalamic centers and, further evidence which suggests that central autonomic stimuli may be unilateral.[28] Since Burn and Rand[30] and Dale[23] have presented rather convincing evidence that all postganglionic fibers of the autonomic nervous system are cholinergic, it might make little difference which hypothalamic area supplied the initiating stimulus.

However, it seems possible that an ictal process in a localized region of the hypothalamus might initiate the episodes which seem characteristic of the clinical conditions included in the classification under consideration.

Classification of vascular pain syndromes of the head and neck on the basis of localized disturbances of the microcirculation. The criteria for inclusion of a clinical syndrome of the head and neck in the "vascular dysfunction" group are: (1) the presence of an abnormal state in certain "units" of the capillary bed, (2) a tendency toward unilaterality in the expression of the symptoms produced, (3) a tendency for the clinical expression of the disorder to be both episodic and of the "cluster" type, and (4) some reasonably acceptable evidence that the disorder is fundamentally vascular.

The disorders which seem clearly to meet these criteria are (1) migraine, (2) histaminic cephalgia, (3) Sluder's syndrome, (4) carotidynia, (5) Quincke's edema, (6) localized erythromelalgia of the skin of the face and neck, (7) Ménière's disease, and (8) myalgia of the head and neck.

Other disorders, the inclusion of which might lead to greater controversy, are chronic simple glaucoma, Bell's palsy of the idiopathic type, perennial vasomotor rhinitis of the physical allergy type, and tic douloureux.

Differential diagnosis of disorders of the capillary-histamine syndrome. Because of the frequency with which somewhat similar symptoms on a different pathologic basis may counterfeit those of the syndrome under consideration, there are no conditions in which a carefully taken chronologic history and a faithfully performed physical examination of the areas involved are of more importance in enabling the physician to reach a diagnosis. Development of the true clinical pattern is of special significance.

The differential diagnoses of migraine[31] and Ménière's disease[32,33] have recently received full consideration. Myalgia of the head and neck, described and popularized by von Froriep, is not recognized at present as an entity by most clinicians. This denial was initiated by Virchow and his followers because, in autopsy and biopsy specimens in cases of myalgia, they could not identify the cellular and tissue changes which they thought should be present in a painful tumor; in their eyes, a lesion which refused to fit into the concepts of the cellular pathology of Virchow simply had no physical existence.

It was obviously not myositis, so the suggestion was made that it was probably a variety of fibrositis. It was sometimes termed "fibromyositis" in an attempt to explain the differences from true fibrositis that were sometimes discovered. I would not wish to imply, however, that myalgia and fibrositis may not coexist.

Clinical pattern of myalgia. (1) Myalgia shows a strong tendency toward unilaterality. This is not characteristic of fibrositis. (2) Myalgia is episodic and, at the time of recurrences, tends to reappear in the same muscle or group of muscles. (Fibrositis may be episodic, but it shows a definite tendency for the painful regions to vary during exacerbations and recurrences.) (3) The quality of the pain in myalgia differs sharply from that of fibrositis as was pointed out by Lewis and by Kellgren. The pain of myalgia is of the deep aching type and disposes the sufferer to seek repose and isolation, whereas the pain of fibrositis has a bright burning quality and tends to stimulate toward increased activity. Lewis showed that deep pain was associated with a decrease in the pulse rate and a lowering of the blood pressure, whereas the opposite was the case with the bright superficial pain of fibrositis. Lewis found the most characteristic feature of all to be the tendency of myalgic pain to be referred, that is, to be felt at a distance from its pathophysiologic source. It is not referred along sensory nerves but seems to follow a myotonic distribution. The pain of fibrositis, however, "exactly locates the site of the mischief." (4) Myalgia does not show the stiffening with disuse and the relief with mild exercise that is characteristic of fibrositis. (5) Myalgia tends to involve certain preferred muscles and muscle groups seldom involved in fibrositis. These are the sternocleidomastoid muscles (in which the involvement is apt to be segmented), the upper border of the trapezius muscles, the strap muscles attaching to the thyroid cartilage and the thyroarytenoid muscles on the posterior surface of the larynx, the omohyoid and the glossopharyngeus muscles at their insertions into the base of the tongue, the superior constrictor muscles of the pharynx, particularly as they form Passavant's fold just posterior to the velum of the palate, the temporal muscles, and the 2 bellies of the occipitofrontalis muscles.

This apologia for the recognition of myalgia as a clinical entity separate from fibrositis, both of the primary and secondary varieties, has been made because of the tendency to deny its existence as a clinical entity and because, if accepted, as I believe it should be, it forms an important member of the symptom-producing syndromes of the head and neck, which appear to be on the same physiopathologic basis.

SUMMARY

On the basis of Schayer's demonstration of the probable existence of a physiologic mechanism for relatively autonomous control of the microcirculation—the induced release of histidine decarboxylase—a hypothesis is presented to show that a disorder of this mechanism could explain both painful and vertiginous syndromes, especially in the region of the head and neck.

The syndromes which it is presumed would fall into this category are, particularly, migraine, histaminic cephalgia, myalgia of the head and neck, and Ménière's disease.

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(Continued on page 352)

Tension Headache

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IN ANY DISCUSSION of tension headache, one of the first things that should be pointed out is that there are 2 basic types of tension headache. One type is related to muscle tension, and the other is related to nervous tension. These 2 distinct entities are treated in an entirely different manner. This paper is only concerned with nervous tension headache.

Nervous tension is probably one of the most important yet, also, one of the least understood components of the headache syndrome. This type of headache belongs to the vascular group of headaches and is caused by heightened nervous tension and periodic anxiety, giving rise to a state of blood vessel hypertonicity. Almost invariably, it follows shortly after such an episode of increased nervous tension.[1]

This type of headache is not caused by the nervous tension, as such, which gives rise to a state of hypertonicity, but by the rebound hypotonicity (vasodilation) which follows the hypertonicity (vasoconstriction).[2] It is this factor which usually confuses the patient and, sometimes, even the physician. This confusion arises because the headache itself will often occur when the patient is in a completely relaxed phase (vasodilation) and not during the actual tension phase (vasoconstriction).

Such a tension headache patient will usually show a definite relationship between his headache attack and a preceding stress situation. Another factor which often plays a contributory part in the etiology of this type of headache is physical fatigue. We often see this tension-fatigue type of headache among the medical profession. Physicians frequently work quite hard while they are fatigued and under severe nervous and emotional strain. These headaches usually occur in the "letdown" phase which follows the stress situation, without any associated psychogenic disturbances.

In most cases of tension headache, however, there usually is an underlying emotional disturbance present. Because of this, the patient needs to learn to make certain adjustments to these tension situations or, at least, to minimize their effects. Quite often, these patients will need the help of the physician to accomplish this. In many cases, the physician and the patient will find that this is the most difficult part of the problem; nevertheless, it must be accomplished. This aspect of the problem often requires extra patience and diligence on the part of the physician.

It is quite common to find an element of such tension also present in cases of true migraine. Such cases of migraine should more correctly be termed "migraine-tension" headaches.[3,4] Nervous tension is frequently found to be present both during and preceding a migraine attack and is one of the most common precipitating factors which can bring on an attack. Tension headache is also related to migraine, as far as the underlying physiologic mechanism is concerned. Although migraine headache and nervous tension headache both belong to the vascular group of headaches, they definitely differ clinically and must be differentiated. This is done by knowing the symptoms of each type and by taking a careful case history from the patient.

One of the most common causes of tension headache is the so-called anxiety state. Headache in anxiety states usually affects the frontal areas or the vertex of the head.[5] The tension headache patient rarely presents a common family history of headache. This factor often helps differentiate tension headache patients from cases of true migraine. These patients usually state that their pain will develop without any prod-

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romal symptoms. There are no prominent ocular symptoms preceding the actual headache phase, such as we find in the migraine type of head pain (scotomas).

Tension headache patients rarely have any organic basis for their headache attacks. A physical examination is usually negative. However, a patient with organic diseases, for example, a diabetic, a cardiac, or an allergic patient may also have a tension headache. In such cases the headache attacks are usually an independent entity and are not directly related to these other conditions or diseases which may occur simultaneously, except in respect to the underlying anxiety often present in such cases. In tension headache there are no ocular, gastrointestinal, or nasal symptoms present.

The usual tension type of headache tends to spread over the entire head and, quite frequently, is most severe in the occipital area. We frequently find the patient describing his pain as a feeling "like a tight band around his head," which seems to become increasingly tighter. The pain is of a throbbing nature but is usually rather dull in character. The severity of the attack often varies, and the attacks may be periodic and recurrent. These attacks usually tend to develop rather slowly and build up to a peak.

Blumenthal and Fuchs[6] describe 3 distinct types of tension head pain. With one type, the patient feels as if his head were in a vise with a constricting type of head pain in the frontal region. The second type of head pain is located in the vertex of the head, and the patient feels as though the top of his head had been blown off. The third type of pain is located in the occipital area and is often accompanied by a muscular stiffness in the neck. The tension headache patient has a rather nervous type of personality and is very conscientious in his work and in his daily way of life. Actually, the basic factor in the etiology of the average case of tension headache is the fact that the patient does not know how to fully relax or to rest. This is what the physician must demonstrate and point out to the patient and what the patient must learn. Unless the patient learns how to relax when he is under stress and strain, he will receive no benefit from the rest of his treatment program.

The degree of nervous tension which is present can usually be evaluated by the physician by observing the patient's general expression and behavior while he is taking the case history. The presence of excessive nervous tension indicates that the physician must treat the patient as well as the headache. Both problems must be treated separately at the same time; otherwise, there usually will be no success with the prescribed treatment program. The usual history of a typical tension headache problem shows that the headache will come on at the end of an excessively hard working period. Quite often the pain will come on several hours after the patient has actually finished his work, when he has left his office and work problems behind him and is supposedly relaxing at home, or even when he is asleep. To call this a tension headache may often be very confusing to the patient, but the pattern shows that the actual headache attack was due to the secondary state of hypotonicity which resulted from vascular fatigue and was not due to the state of hypertonicity which prevailed during the period of nervous tension, as it usually does. The hypotonicity leads to vasodilation of the cranial blood vessels with resultant stimulation of the adjacent sensitive structures in the area.

Because of this physiologic mechanism found with tension headache, these patients will often be awakened at night by their headache attacks. The pain is usually not severe enough to cause them to immediately arise to seek relief. In this respect, there is a definite difference between tension head pain and the pain of histaminic cephalalgia. The histaminic cephalalgia patient is immediately forced to arise from his horizontal position because of the extreme severeness of his pain.

Patients with the tension type of headache are frequently found to be of the perfectionist personality type. They are often the type of person who cannot adapt himself to the situations encountered in the average home life or working environment. These patients are unable to live within their personal environment, and, because of this, nervous tension develops. This, in turn, brings about the above-mentioned physiological reaction which actually produces the headache attacks.

If the patient has an inadequate personality, nervous tension develops when he attempts to respond to some unusual demand. Thus, the physician has to show each such patient the practical limitations of his nervous system and how the patient might live within these limitations. If the patient recognizes this, he usually is able to adjust to the demands of such situations.

In treating the tension headache patient symptomatically we are constantly being reminded of various types of patent medications which are available. There is not a night on the average person's television program that he is not told about some preparation which will help relieve tension headache. This is also true for radio programs and even with newspapers. Most of the preparations usually prove to be valueless to the patient. After he has tried many of them and had little or no success with them, he then, as a last resort, seeks the aid of a physician.

The physician often must handle these patients very tactfully because many of them are extremely sensitive and resent being told that their headaches are due to a nervous or anxiety situation. However, the patient of average intelligence will understand this if he is honestly seeking a solution to his headache problem.

Heat is often found to be quite beneficial in symptomatically treating the tension type of headaches. This is especially true of wet heat. Mild sedatives may prove to be beneficial in some selected cases. However, it should be pointed out that habit-forming drugs should not be overused in situations of this type. In some selected cases, the use of mild tranquilizers may prove to be helpful to these patients. This should be done very cautiously and for not too long a time, and the dosage should not be too excessive. An analgesic is beneficial in many cases of this type. Such a drug must be used correctly, however; it must be used at the proper time and in the proper dosage. Recently, I have been using an analgesic called Synalgos in the symptomatic treatment of tension headache. This preparation is composed of 6.25 mg. of promethazine hydrochloride, 3 grains of aspirin, 2.5 grains of phenacetin, and 7.5 mg. of mephentermine sulphate. The usual dosage is 2 capsules, which can be repeated in two or three hours, if needed. The preparation is not new and has been on the market for several years. I have not noticed any side effects with this drug combination. It is in capsule form and, therefore, it is not objectionable to the patient's taste.

Case report. Here is an example of the drug's effectiveness: E. H., a 39-year-old white male, gave a history of chronic headache attacks for the past fifteen years. He holds a rather responsible position at work and frequently found himself under excessive tension in his daily routine. He described his headache attacks as being over the frontal and eye regions, and his headache often felt as though "his head were in a vise" during the attacks. The character of the pain was described as a constant dull ache, and the attacks varied in severity. This was not a "sick headache," there being no nausea or vomiting at any time. The average duration of the attacks usually was between ten to twelve hours. The position of the body did not seem to influence the severity of the pain. The involved areas were not tender to the touch or to pressure. There were no nasal or ophthalmologic symptoms associated with the attacks. The headaches could occur at any time, day or night, but were usually prominent late in the evening or on weekends, when he was in a relaxed condition.

A diagnosis of tension headache was made. He was placed on various analgesics in the symptomatic phase of his treatment program. The patient received excellent results with 2 Synalgos capsules early during the headache attack. On some occasions he required a second dose of 2 additional capsules some three hours later. However, in over 90% of his attacks, 2 capsules of Synalgos brought him complete relief from his headache. This certainly would be classified as an excellent symptomatic response to the drug.

Another preparation which I have found helpful in selected cases for the symptomatic treatment of tension headache is Versidyne. I reported on this drug in 1962 in cases of this type.[7] Versidyne is a tetrahydroisoquinoline derivative which belongs to a new chemical class of anodynes. This is a new drug and will make its appearance on the drug market probably in 1964. It produces little or no side effects, and the results obtained from this preparation are quite encouraging when it is used to obtain symptomatic relief from tension headache.

I have been working with another new preparation, which is still in the experimental stage, called Celphalgesic, which has given excellent results in relief of tension headaches symptomatically. This is composed of 250 mg. of aspirin, 50 mg. of acetophenetidin, 15 mg. of diallylbarbituric acid, and 30 mg. of caffeine anahydrous. This combination of drugs has given very excellent results in relieving tension headache attacks. It should also be pointed out that this combination of drugs does not seem to produce any harmful side effects, and it is not habit forming.

Diazepam (Valium) is another new drug which seems beneficial in handling cases of tension headache. This drug was reported on in 1963 as giving excellent results in cases of myalgia of the head.[8] This drug is a benzodiazepine derivative. The best results were obtained when Valium (2 mg.) was administered to the patient three times daily. Other than an occasional mild drowsiness, there were no side effects noted when this drug was used. Valium is definitely not a member of the analgesic group of drugs. I merely introduce it here because it is new and has been very useful in selective cases of tension headache which I have treated, and its usefulness should be mentioned.

Tension headaches seem to be gaining a considerable amount of attention lately, both by the patient and the physician. This may produce an abundant amount of investigative research in the very near future. If so, we may possibly look forward to the discovery of an agent which will be more beneficial in relieving tension headache symptomatically than the preparations which are available to us today. In this paper I have presented the best of the newer preparations which

I have used in treating this type of headache problem.

Tension headache is a very common problem today, and the tensions of the world are constantly increasing, day by day. It seems logical, therefore, to believe that in the immediate future more effort will be exerted by medical science to solve this problem and to give the tension headache patient relief from his attacks.

This paper was presented at the Symposium on Tension at the Maryland and Washington, D. C., Academy of General Practice.

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A New Hypothesis of Vascular Dysfunction Linking Certain Pain Syndromes of the Head and Neck with Meniere's Disease

(Continued from page 348)

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Pain Due to Long Hamular Process in the Edentulous Patient

Report of Two Cases

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THE SYMPTOM of atypical deep pain in the head and neck region has received a great deal of attention through the years. Many of the face pains, both intraoral and extraoral, have been differentiated and classified.[1] A great many more have gone unexplained and been designated under the general heading of atypical face or jaw pain. It is the purpose of this paper to report 2 cases of pain caused by a long hamular process in older patients who have become edentulous. Loss of dentition resulted in loss of facial dimension and affected the relationship of the upper jaw to the lower jaw when the patients' teeth were in occlusion.

The mechanism by which pain is produced from an abnormally long hamular process is a simple mechanical one, and the patient is only aware of pain when the teeth of the upper and lower jaws are brought into the centric occlusion position. If the patient is completely edentulous and unable to tolerate dentures, when the lower jaw is brought upward to meet the edentulous ridge of the upper jaw, overclosing of the mandible results. When the lower jaw is overclosed in this manner in the presence of an abnormally long hamular process of the maxilla, especially if the process is deviated to the lateral position, it is quite possible for the coronoid process of the mandible to come in close contact with the tuberosity region of the maxilla. Pain may result if the hamular process projects out to interfere with the coronoid process and overlying tissues when the mandible is overclosed.

REPORT OF CASES

Case 1. An 84-year-old man was seen at the Mayo Clinic in October 1959, having been referred by his local dentist for evaluation and treatment of symptoms that dated back one and one-half years before his admission here. The patient complained of the presence of a "lump" just distal to the tuberosity of the upper left maxilla. The lump did not bother him except when he ate, at which time it interfered with his dentures to the extent that he no longer could wear them. He had been edentulous for many years, and the bite had closed because of loss of alveolar process caused by resorption. By means of palpation it was easily determined that the lump to which the patient referred was a long hamular process which deviated somewhat to the lateral aspect of the maxilla approximately at the outer buccal limits of the ridge of the alveolar process of the maxilla. Palpation during mandibular movement determined that the hamular process was interfering with the anterior border of the ascending ramus during chewing.

After the reason for pain had been explained to the patient it was decided to fracture the long hamular process so that it would not interfere with the ramus of the mandible or the coronoid process during chewing. The patient did not care to try dentures again since he had been accustomed to going without them. Under local anesthesia, the hamular process was fractured (Fig. 1). A week later the patient was dismissed from our care, free from pain.

In December 1960, the patient returned complaining of pain in the upper left tuberosity region similar to the pain he had described when

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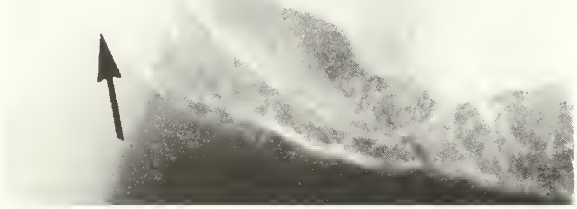
Fig. 1. Case 1. Region of tuberosity of left maxilla showing long hamular process and fracture line at base of process

first seen in 1959. He said the pain had returned about six weeks before this second visit and was accompanied by an increase in flow of saliva. He said he was still able to eat and the pain was not as bad as it had been the year before. On examination it was determined that the hamular process in the area of the upper left maxillary tuberosity was quite prominent and definitely tender. X-ray examination revealed that the hamular process had healed in the area of the fracture line that had been created by digital pressure the year before (Fig. 2). The patient was advised of this, and we recommended that this time, again with local anesthesia, we make an incision over the left maxillary hamular process and remove the entire process with a rongeur. The patient agreed and the operation was performed, the wound being closed with one interrupted catgut suture. The patient had no complaints four days later and was able to eat without pain. Two weeks after this he was completely free of pain and no longer complained of excessive salivation. The wound over the hamular process had healed satisfactorily. The patient was pleased and was dismissed from our care. Follow-up inquiry indicates that he has had no further difficulty.

Case 2. A 48-year-old man who was first seen in September 1960, complained of pain and soreness, with occasional swelling in the upper right jaw in the region of the tuberosity. He also said the pain radiated into the neck region. The symptoms had been present for many years. The patient was edentulous on the upper jaw but had sufficient lower teeth so that a lower partial denture could be worn. The patient was seen again in February 1963, and at that time one of our consultants suggested the symptoms might be due to a long hamular process of the maxilla on the right side. Such was the case, and in September 1963 surgical removal was performed with the use of local anesthesia. The process was removed through a small incision over the right hamular process. The wound was closed with an interrupted catgut suture (Fig. 3).

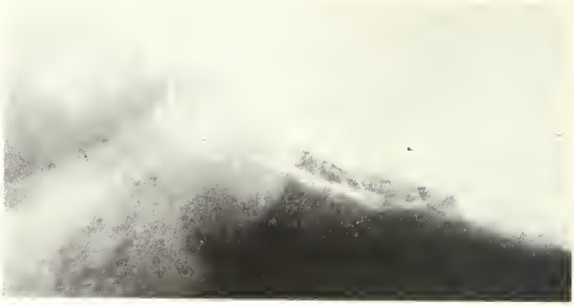
Fig. 2. Case 1. Left maxillary hamular process healed at the base where it had been fractured 14 months before.

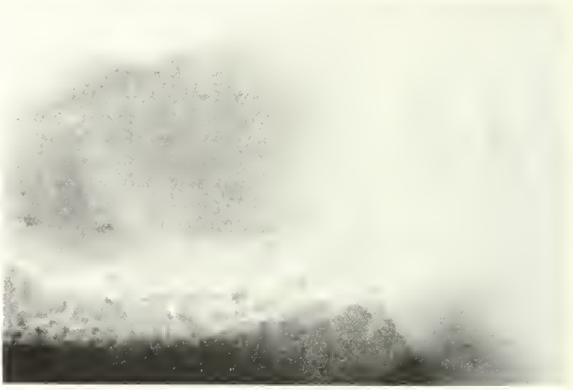
Fig. 3. Case 2. Long hamular process of maxilla on right

In subsequent correspondence the patient stated that he wished he could have received this treatment years ago because he has been entirely comfortable since the procedure.

COMMENT AND CONCLUSIONS

These 2 cases illustrate that a long hamular process of the maxilla can sometimes cause painful interference with function of the lower jaw, particularly in edentulous patients in whom the bite is somewhat closed and the process is long and deviated toward the lateral aspect of the jaw. Although this does not appear to be a frequent occurrence, it should be kept in mind by the physician and dentist when the patient complains of discomfort, especially while chewing. This is particularly important if the patient is edentulous in either jaw or has a closed bite because of wearing down of the teeth.

The treatment by surgical excision of the hamular process is simple and can be done in the office with local anesthesia.

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RUTH E. BOYNTON *Series*

Ruth Evelyn Boynton, M.D.

WILLIAM P. SHEPARD, M.D.
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I accepted the invitation to write this profile late in May 1961, at the time of Dr. Boynton's retirement dinner. I have been interested in the impact of retirement on my friends, and it occurred to me that the profile might be more interesting if it could be based upon an observation of this impact in her case.

Mrs. Shepard and I visited Dr. Boynton and her housemate, Prudence Cutwright, in their beautiful new Miami home six months after her retirement. They have a two-car garage, screened-in swimming pool, outdoor terrace, a cooling and heating system in the house, poinsettias in bloom all winter, and the beginning of a small but exquisite orchid collection.

We never saw Ruth looking better. She says that she has not had one moment of regret over her retirement, and although she misses some of the friends who do not get down their way, they have an almost continuous stream of visitors from Minnesota.

Dr. Boynton is the non-paid secretary of the American Student Health Association. Her office is located in the Student Health building of the University of Miami, about 5 miles away. Here she has a full-time secretarial staff and is already doing more for this association than a voluntary secretary with a full-time job would have had time to do.

The impact of "graduation to retirement" has been all to the good for one of Minnesota's most distinguished physicians and public health leaders. She seems to be enjoying the happiest days of her life.

It is now over forty years since Dr. Harold S. Diehl, who was then pathologist for University Hospital (it was only one hospital in those days), was asked to take over the direction of the relatively new Student Health Service. It was located on the ground floor of Pillsbury Hall. Dr. John Sundwall had just resigned to join Marion LeRoy Burton at the University of Michigan, where he was to direct the Student Health Service and teach preventive medicine.

Dr. Diehl had a job to do, since the budget of the Student Health Service had been exceeded considerably due to the most extensive epidemic of paratyphoid fever, type C, ever recorded up to that time. Apparently the actuaries of the university's health insurance plan had not counted on the "imponderable" of such an epidemic. I think Dr. Boynton and I were the first physicians invited by Dr. Diehl to help him with this job, and there was quite a discussion with Dr. Litzenburg and others whether our title should be "Assistant Directors" or "Assistants to the Director." Dr. Litzenburg insisted on the latter, so we compromised by agreeing with him.

We sat at a double desk in the small room adjoining Dr. Diehl's, but neither of us was at the desk much of the time. We made ward

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rounds twice a day, made appointments with the excellent consulting staff, took our turns at the dispensary, operated the new diathermy machines, and in general supervised the staff under Dr. Diehl's direction. Under his always excellent management the deficit in the budget disappeared in less than two years, and we started to accumulate a small surplus each year in the hope of building a new student health service. Dr. Boynton was there to see this hope realized.

There were several interesting events in those days, one or two of which may suffice to show the medical environment under which Dr. Boynton got her "baptism of fire" in clinical medicine, in public health, and in health education. She was to distinguish herself in all these fields in the years to come.

Dr. J. A. Myers, a part-time dispensator to whom all severe respiratory infections were referred, averaged 2 new cases of tuberculosis a month among the students. I recall one time when we had as many as 7 cases of active tuberculosis on the wards. A medical student died that year, and with the help of Dr. Larson's department, we were able to demonstrate the tubercle bacilli in his blood stream. Today it is a rare occurrence to find one new case among 3 times the number of students.

There was a terrific outbreak of scarlet fever at the "farm school" which kept us all busy for several weeks. There was a minor smallpox outbreak among the few students who refused to be vaccinated, but it was of sufficient significance so that the city health department threatened to quarantine the campus. Fortunately, this turned out to be unfeasible without a police cordon, and the students decided to be vaccinated.

Colds were, of course, the commonest cause of illness, and at one time we thought we had a sure cure. The Edgewater Arsenal in Maryland published an article saying that their employees engaged in making chlorine bombs for gas warfare were remarkably free of colds; it was theorized that small amounts of chlorine in the air dissolved in the mucous membranes of the upper respiratory tract, thus killing the invading bacteria which we then thought were responsible for colds. The Wallace Tiernan Company gave us a supply of chlorine cylinders and a venturimeter with which we could deliver a very small, carefully measured amount of chlorine into a room in which the students sat for an hour in comfortable study chairs.

Each alternate student was referred to Dr. Boynton and me in the "chlorine room" while the other one was sent to Dr. Myers and others in the front dispensary for the usual treatment of aspirin, gargles, and nose drops. We kept close account of 3,000 students with colds that year, 1,500 of whom had had the benefit of the new chlorine treatment. I was thoroughly convinced that it was the most effective thing we had ever had, and it looked like the dawn of a new day. When we compared the records, however, some months later, we found there was not the slightest difference in the duration of the cold or the occurrence of complications or the days of disability between the 2 groups. Nevertheless, this started the long years of research on colds which eventually led Dr. Diehl to the discovery of papaverine. The patents are still held by the university, and it is considered one of the most effective cold remedies extant.

There were relatively few automobile accidents. Students walked to the campus or arrived on the streetcars of the Twin Cities' Rapid Transit Company and walked to classes; they did very well without either automobiles or bicycles.

I brought my homemade crystal set to the health service for the entertainment of one of our convalescent patients, and I still remember my amazement that these invisible waves would penetrate the thick walls of Pillsbury Hall and come through the earphones as clearly as though we were outdoors.

During our second year, Dr. Leonard Larson joined the staff as a full-time physician. He, as you know, is past president of the American Medical Association. Another physician who spent part of his internship in the Student Health Service was Dr. Kenneth Sutherland, now county health officer of Los Angeles. Our first qualified pharmacist was Ray Amberg, now superintendent of the University Hospital Complex, and past president of the American Hospital Association.

One of the revelations was to see "Doc" Cooke expand and delight in the team we set up for the purpose of freshman physical examinations. For many years prior to this, "Doc" Cooke had given physical examinations to all male entering freshmen with the help of but one clerk. It took him most of the year to get them all done, and how he did anything else, I will never know. We reorganized on a teamwork basis including 10 physicians; "Doc" Cooke took his part at Station No. 9, as I remember it, being responsible only for testing the skeletal system, muscular activity, coordination, and most important of all, passing them on to Station No. 10 without a chance for them to refuse, where they were promptly vaccinated. Dr. Boynton had more difficulty with the physical director for women than we had with "Doc" Cooke. It was some years before entrance physical examinations for women could be done at the Student Health Service, but she won by sheer persistence and logic. This, then, was the milieu in which Dr. Boynton was inducted into the practice of medicine and the even broader practice of public health and of health education.

I asked her one time what she thought persuaded her to go into medicine. She explained that her family, in La Crosse, Wisconsin, had a husband-and-wife team for their family physicians. The wife, Dr. Mary P. Houck, mainly took care of the children, including the final illnesses of her 2 brothers, one at age 12, and the other at 20. She also cared for her mother, who died when Ruth was relatively young. Although Dr. Houck never in any way suggested or encouraged medicine as a profession for a woman, Dr. Boynton says that her impressive example was one of the factors that made her decide, in her high school days, that medicine was her field.

I then asked her what prompted her to specialize in the field of preventive medicine and public health. She said she thought it was mainly the influence of Harold Diehl and Albert J. Chesley. Chesley had recently succeeded Dr. Mullen as director of the Division of Preventable Diseases in the State Department of Health. As director of this division, Dr. Chesley's dedication, skill, and persuasive example, I am sure, influenced all of us, including Dr. Diehl. Dr. Chesley later became the equally dedicated state health officer of Minnesota.

Dr. Boynton was not one to be entirely content with the experience, training, and opportunities at the local scene. Nonetheless, having tried the more distant and greener pastures, and having added immeasurably to her experience, she always came back to Minnesota and the Student Health Service. After serving as instructor in preventive medicine and public health, and later as assistant professor, she then went to work for Dr. Chesley as director of the Division of Child Hygiene in the State Department of Health, a position which she filled with distinction from 1923 through 1927. She was assistant professor of medicine and chief medical advisor for women at the University of Chicago in 1927 and 1928. The University of Minnesota gave her an associate professorship in preventive medicine and public health from 1931 to 1938 when she was promoted to full professor. Dr. Boynton directed the Student Health Service most of this time. She became acting director of the School of Public Health, then new, during Dr. Gaylord Anderson's military leave to the office of the Surgeon General of the Army. She became a member of the Minnesota State Board of Health in 1939; she served as vice-president in 1943 and as president in 1945.

Little was done in the way of college health service in Britain until the end of World War II, when the few people there, working in that field, felt that it would be helpful to have someone from this country come over as a consultant. She was approached by the Fulbright Scholarship Board, and was promptly awarded a research scholarship for a six-month study of Great Britain's student health services. She was there from February through July 1951, making her headquarters first at Oxford University, then touring all of the universities in England, Scotland, Wales, and Northern Ireland. Needless to say, she made a great impression with her sensible and workable recommendations, and the student health service people in Great Britain became very fond of her. It was at her suggestion that exchange professorships were arranged so that someone in the teaching and student health service field in Britain would come to Minnesota in exchange for one of Minnesota's staff members who would take his place in England. The exchange included equal salaries, trading of houses and cars, and of offices at their respective universities. The success of her visit to Britain and the exchange professorships were well attested by the warm, affectionate greetings sent to her at the time of her retirement dinner.

Ruth was born in La Crosse, Wisconsin; she is the daughter of Ervin and Nellie Alice (Parker) Boynton. After receiving her bachelor's degree and taking her pre-medic work at the University of Wisconsin, she was graduated from the University of Minnesota in 1921, obtaining a master's degree in public health in 1927. Shortly after she came to Minneapolis, her father, then alone, came to live with her. He was a charming man, well experienced in business, and an entertaining conversationalist. He took great pride in Ruth's progress and in her work, and was grateful to me and others when we had a chance to tell him how well she was doing, which we knew she would never tell.

She was a member of the planning committee for the Third National Conference on Health in Colleges in 1947.

In 1958, she was awarded the Francis E. Harrington Award by the Minneapolis Junior Chamber of Commerce. It was presented for "distinguished service in public health to one of the truly great women of this state, of American Medicine, and public health." Among other things, the citation stated: "While others had hewn the original trail in this area (student health) tonight's recipient laid and developed the broad and finished highway and pioneered in the fields of student health protection that had been overlooked by others. Twenty-five years of responsibility for the health service and protection of an academic group of over 25,000 persons provided a challenge that was met with wisdom, vision, and vigor and resulted in the development of a comprehensive program of personal and environmental health protection unsurpassed in any part of this nation . . . From all corners of the nation, from all parts of the globe, visitors have beaten a well-worn path to the door of the University Health Service and, inspired by its achievements, have gone away fired with a desire and a determination to develop comparable programs in other states, in other nations."

Her many distinctions have been cited by others. She does, however, have some personal qualities which are intangible but precious. Since I may have known of these longer than most, they may be worth listing.

The first is integrity to a degree seldom equaled by others. Her word is always her bond.

The next is steadfastness of purpose. Once she is committed to a project, she never gives it up until it is accomplished to her full satisfaction.

The next is her wisdom, which became almost uncanny to some of us who knew her as she grew more experienced in the field of statesmanship and administration. Someone said of her, "If Ruth Boynton walks away from a proposal and says nothing, you may know for sure that thing is going to blow up!"

Outstanding is her loyalty to her profession and to the university. Although widely traveled and often tempted by flattering offers, distant fields never looked greener for long.

It is to the credit of Dr. Boynton, the University of Minnesota, and its Student Health Service administration that she was able to build so great a career and to contribute so much; first, as a physician; next, as a public health and preventive medicine specialist; and most of all, as an understanding and valued counselor to students for whom she always had remarkable understanding. She shows invariable good humor even when sorely tried. She is the embodiment of the good physician with empathy rather than sympathy, objectiveness, and understanding of human nature's nobility and its foibles.

Altogether, she is a grand person! May she long enjoy her "graduation."

EXTRACTION OF PERIPHERAL THROMBI may be aided by forceful injection of heparinized saline. The necessary materials are readily available in most operating rooms. Successful removal of the thrombus prevents morcellation, further peripheral embolization, and irreversible obstruction. A thrombus adherent to the arterial intima is more difficult to remove than one of more recent origin. After removal of the embolus through an arteriotomy at or below the point of obstruction, a no. 240 polyethylene catheter is inserted between the clot and the vessel wall. The tube is advanced distally between the thrombus and intima and heparinized saline is forcefully injected every few inches until the thrombus can be removed by gentle tugging at the proximal end. A second, more distal arteriotomy may be necessary to complete the dissection. The procedure has been used successfully in 2 patients.

KAREL B. ABSOLON, M.D., WARD O. GRIFFEN, JR., M.D., RICHARD C. LILLEHEI, M.D., and RICHARD A. DE WALL, M.D., University of Minnesota, Minneapolis. Minn. Med. 46:851-853, 1963.

Transactions of the North Dakota State Medical Association

SEVENTY-SEVENTH ANNUAL MEETING

Minot, North Dakota, May 2, 3, 4, and 5, 1964

OFFICERS

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Alternate Delegate to the AMA	R. C. PAINTER, Grand Forks

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Seventh District	T. E. PEDERSON, Jamestown
Eighth District	DEAN STRINDEN, Williston
Ninth District	KEITH FOSTER, Dickinson

Terms expiring 1965

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Terms expiring 1966

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MARSHALL LANDA	Fargo
Appointment expiring 1965	
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RALPH MAHOWALD	Grand Forks
Appointment expiring 1966	
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R. O. SAXVIK	Bismarck
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LLOYD RALSTON	Bismarck
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Governor's Health Planning Committee

G. A. DODDS, Member	Fargo

State Health Council

Members: PERCY OWENS	Bismarck
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Committee on Liability Insurance

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MACK TRAYNOR	Fargo
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W. C. HANEWALD	Dickinson
K. W. KIHLE	Bottineau
W. D. LaROCHELLE	Stanley
G. E. ELLIS	Williston
PAUL BEITHON	Wahpeton
J. W. GOVEN	Valley City
D. C. KANA	Grafton
R. W. PIERSON	Bismarck
W. S. SKWAROK	Hebron
R. D. McBANE	Devils Lake

Advisory Committee to the Multiple Sclerosis Society

ROBERT IVERS, Chairman	Fargo
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C. M. GRAHAM	Grand Forks
RALPH DUNNIGAN	Bismarck
MACK TRAYNOR	Fargo

Crippled Children's Services Division to the Public Welfare Board of North Dakota

D. E. SKJEI, Representative	Williston

Committee on Constitution and By-Laws

C. H. PETERS, Chairman	Bismarck
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JOHN C. FAWCETT	Devils Lake
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T. E. PEDERSON	Jamestown
G. E. ELLIS	Williston
HARLAN LARSEN	Dickinson
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RICHARD K. HELM	Grand Forks

REFERENCE COMMITTEES

1. *To consider reports of President, Secretary, Executive Secretary, and Treasurer:*

W. C. HANEWALD, M.D., Chairman	Dickinson
JAMES LITTLE, M.D., Vice-Chairman	Mayville
KENNETH HELENBOLT, M.D.	Grand Forks
RICHARD LARSON, M.D.	Velva
ROY E. KULLAND, M.D.	West Fargo
PHILLIP O. DAHL, M.D.	Bismarck

2. *To consider reports of Council, Councillors, and Special Committees:*

ROBERT J. ULMER, M.D., Chairman	Fargo
GLENN W. SEIBEL, M.D., Vice-Chairman	New Rockford
W. P. TEEVENS, M.D.	Grafton
JENS SAHL, JR., M.D.	Minot
C. J. KLEIN, M.D.	Valley City
M. A. K. LOMMEN, M.D.	Bismarck

3. *To consider reports of Delegate to AMA, Medical Center Advisory Council, and the Committee on Medical Education:*

GEORGE L. COUNTRYMAN, M.D., Chairman	Grafton
ROBERT B. TUDOR, M.D., Vice-Chairman	Bismarck
BLAINE F. AMIDON, M.D.	Fargo
DONALD E. SKJEI, M.D.	Williston
A. MALCOLM CAMERON, M.D.	Minot

4. *To consider reports of Standing Committees, except Committee on Medical Education and Committee on Medical Economics:*

LLOYD A. GILTNER, M.D., Chairman	Minot
HENRY A. NORUM, M.D., Vice-Chairman	Fargo
GEORGE H. HILTS, M.D.	Cando
RICHARD H. LEIGH, M.D.	Grand Forks
CARL J. BAUMGARTNER, M.D.	Bismarck
PAUL J. BEITHON, M.D.	Wahpeton

5. *To consider reports of the Committee on Medical Economics, including Advisory Committee to Public Assistance Division of State Welfare Board, Committee on Rural Health, and Governor's Health Planning Committee:*

A. C. BURT, M.D., Chairman	Fargo
E. G. VINJE, M.D.,Vice-Chairman	Hazen
C. G. JOHNSON, M.D.	Rugby
JOHN A. SANDMEYER, M.D.	Grand Forks
JOHN M. VAN DER LINDE, M.D.	Jamestown

6. *Committee on Resolutions to include New Business:*

M. E. NUGENT, M.D., Chairman	Bismarck
R. C. PAINTER, M.D., Vice-Chairman	Grand Forks
M. H. POINDEXTER, JR., M.D.	Fargo
J. N. ELSWORTH, M.D.	Jamestown
ROBERT E. HANKINS, M.D.	Mott

7. *Committee on Credentials:*

M. A. K. LOMMEN, M.D., Chairman (Also serves on Committee No. 2)	Bismarck
DONALD E. SKJEI, M.D., Vice-Chairman (Also serves on Committee No. 3)	Williston

PROCEEDINGS
of the House of Delegates
of the North Dakota State Medical Association
Seventy-Seventh Annual Meeting

The First Session of the House of Delegates of the North Dakota State Medical Association was called to order by the Speaker of the House, Dr. Lee Christoferson, at 3 P.M., May 2, 1964, in the Clarence Parker Hotel, Minot, North Dakota.

Dr. Lommen, chairman of the Credentials Committee, reported a quorum present and all credentials in order.

Secretary Buckingham called the roll. The following delegates and alternates responded:

Drs. A. C. Burt, Fargo; H. A. Norum, Fargo; R. J. Ulmer, Fargo; M. H. Poindexter, Jr., Fargo; R. E. Kulland, West Fargo; Paul Beithon, Wahpeton; B. F. Amidon, Fargo; G. H. Hilts, Cando; G. W. Seibel, New Rockford; Robert Painter, Grand Forks; John Sandmeyer, Grand Forks; George Countryman, Grafton; Richard H. Leigh, Grand Forks; Kenneth Helenbolt, Grand Forks; W. P. Teevens, alternate, Grafton; Lloyd Giltner, Minot; A. Malcolm Cameron, Minot; Jens Sahl, Jr., Minot; R. S. Larson, Velva; C. J. Klein, Valley City; C. J. Baumgartner, Bismarck; E. G. Vinje, Hazen; P. O. Dahl, Bismarck; M. E. Nugent, Bismarck; R. B. Tudor, Bismarck; M. A. K. Lommen, Bismarck; John Elsworth, Jamestown; James V. Miles, Jr., alternate, Jamestown; Donald E. Skjei, Williston; W. C. Hanewald, Dickinson; R. E. Hankins, Mott; James Little, Mayville.

There were 30 delegates and 2 alternates present. The following also attended the House of Delegates meeting:

Drs. G. W. Toomey, G. A. Dodds, Amos Gilsdorf, Tom Pederson, E. J. Larson, J. D. Craven, Frank DeCesare, E. H. Boerth, C. H. Peters, R. W. McLean, R. E. Mahowald, R. D. Nierling, Keith Foster, W. M. Buckingham, G. Christianson, T. H. Harwood, and Mr. L. A. Limond and Mr. Charles Johnson.

Speaker Christoferson asked the members to stand for a moment of silence out of respect for 7 valued members who died during the past year.

The motion was made, seconded, and passed that the reading of the minutes of the last session be dispensed with and that they be accepted as printed in THE JOURNAL-LANCET.

Dr. Christoferson asked that all reports, as printed in the handbook, be referred to the proper reference committees for their study.

REPORT OF THE PRESIDENT

I will start this 1964 presidential report with a chronological account of the major activities of your president from March 1963 through March 1964.

It may be of interest to note that during this time I have traveled a total of 19,800 miles, calculated from city to city, in 27 trips outside of my hometown of Dickinson. The high points of some of these meetings follow:

A Medical-Legal Institute was held at Bismarck, April 5, 1963. Attendance by both professions was good, and interest was high. The responsibilities, rights, and rewards of the medical witness should be better understood by the profession. Also, these meetings give the physician more confidence if he is threatened with or becomes involved in personal legal proceedings. Further such meetings are recommended.

April 19 to 21, a National Medical Legislative Conference was held at Chicago. In addition to specially qualified and prepared physicians, many other renowned speakers were on this three-day program. Leading topics were Kerr-Mills and King-Anderson legislation, Operation Hometown, Problems of the Aged, and Our Duties as Citizens. This national meeting is of special value to members of the State Medical Committee on Legislation.

May 4 to 7, Dickinson was honored by being host to the annual meeting of the North Dakota State Medical Association. The report of this meeting can be found in our JOURNAL-LANCET for fall and winter, 1963-64. The graduating second year medical students from the University of North Dakota were invited and 3 attended.

May 19 to 21, your president was a guest of the Minnesota State Medical Association for its annual meeting, held at Duluth. I attended meetings of their House of Delegates, Council, State Board of Health, and multiple specialty groups. Kerr-Mills legislation was passed in Minnesota just prior to this meeting and will be implemented July 1, 1964. Their membership was 3,380 at that time. Their state medical society organization is similar to ours but more elaborate. Their scientific sessions were excellent. On the return from Duluth, visitations were made at Grand Forks, Jamestown, Jamestown State Hospital, and Bismarck. Herman Joos, then chairman of the Board of Administration, requested the opinion of the president of the State Medical Association on the application of Hubert A. Carbone, M.D., as superintendent of the state hospital. I recommended Dr. Carbone to that board. At Bismarck I had an interview with Harold Schafer, chairman of the board of the Glass Wax Company. He is reconstructing the western town of Medora, North Dakota, to the appearance characteristic of the days of Teddy Roosevelt. I assured him that our association will cooperate with him in assembling a medical museum for Medora. We would be expected to furnish some old medical equipment, old books, or anything of interest in the history of North Dakota medicine.

June 12 to 21 was occupied in travel and attending the AMA meeting at Atlantic City, N.J. It was heartening to see a large number of North Dakota physicians attending and participating in the many activities. The enormous AMA is very versatile administratively due to its refinement of organization. Their committee activity is fascinating. Their scientific sessions are the greatest assembly of scientific medical knowledge in the world. Administrative meetings occupy any spare time of the executives. Lyle Limond and Dan Buchanan were occupied much of their time in these functions.

August 20 to 23, Lyle, Dan, John Swenson, and I attended the annual AMA Institute and Medical Society Executives Association Institute at the Drake Hotel in Chicago. This was an excellent program, especially for those involved in medical organization work. Following are some of the high points of discussion at this meeting: The AMA membership is now over 200,000, despite attacks by our adversaries. The staff of the AMA has grown to 850 with a very wide variety of talents. Organization changes within the AMA are being considered. The AMA Board of Trustees has been enlarged from 11 to 15. Four new departments have been formed, namely: (1) community health and health education, (2) governmental medical services, (3) hospitals and medical facilities, and (4) medical finance.

The scientific and health education activities have been and continue to be the cornerstone of the AMA. Plans for the establishment of the AMA-ERF Institute for Bio-Medical Research have been made, along with the existing AMA-ERF Student Loan Program. Other highlights noted at this meeting were the new Council for the Accreditation of Nursing Homes, the AMA alerting symbol for emergency medical identification, the AMA Central Registry of Adverse Reactions to drugs and chemicals for the guidance of physicians in prescribing drugs for patients, the campaign for smallpox vaccination and tetanus immunization, AMA sponsorship of the first National Congress on Mental Illness and Health in October 1962, and the new AMA Department of Medicine and Religion. Also noted was a contemplated second National Congress of Medical Quackery, held October 25 and 26, 1963, in Washington, D. C.

Other topics considered at this meeting were improvement of communications from AMA to the profession and the public. Examples are—public health announcements, the Magazine Relations Department allowing consultation and more accurate publication on medical interests, and the AMA Advisory Committee on radio, television, and motion pictures. It is believed that the medical profession has benefited tremendously from such series as "Ben Casey," "Dr. Kildare," and "The Eleventh Hour" which have obtained technical advice from the AMA. Further topics considered were socioeconomic, as exemplified by support of Kerr-Mills legislation and by explaining to the public the misconceptions and dangers of social security–type medical care. Financing of medical care was discussed. The blue plans and all voluntary health insurance plans should be preserved, but let us ask ourselves the question, "Is it wise to include first dollar coverage with its increased cost of administration, or shall we favor the deductible plans which can be sold at a more reasonable premium price and are to contain coverage protection against those health care costs which are most burdensome to the subscriber?"

September 12 to 14, your president was guest at the annual Montana State Medical Association Meeting in Billings. Their council has less activity than ours or Minnesota's, and much of the work done by the councils of North Dakota and Minnesota is done by an executive committee in Montana, with council representation. The chairman of their legislative committee sent a report to the House Ways and Means Committee in Washington, stating that Montana did not favor Kerr-Mills legislation. This was done because the conservative state legislature and governor of Montana did not approve of taking federal money, and the Montana State Medical Association supported their governor. Of course, the Montana State Medical Association, legislature, and governor strongly disapproved King-Anderson legislation and any social security approach. They were very gracious hosts.

September 20 to 24, meetings attended in Fargo were the OB and GYN Society, District Ten Blue Shield, North Dakota Conference of Social Welfare, and the First District Medical Society.

Saturday, October 5, was one of the highlights of the year. We had our first "Conference of Officers and Committee Chairmen" at the Hall of Four Seasons in Bismarck. Participating were John Swenson, M.D., chairman of the Public Relations Committee; myself; F. J. L. Blasingame, M.D., Executive Vice-President of the AMA in Chicago; Charles Johnson, field service representative of AMA in Chicago; R. J. Ulmer, M.D., chairman of COMPACT; and Mrs. R. E. Hankins, president of the North Dakota Woman's Auxiliary. In the evening we were honored by having Dr. Leonard W. Larson of Bismarck, past president of the AMA, as toastmaster and Norman A. Welch, M.D., of Boston, president-elect of the AMA, as banquet speaker. I would like to feel that this is only a beginning in bringing the AMA, our state officers, our AMA delegates, our councillors, and committee chairmen closer to the individual members of each district society. We have made a start; now perhaps there will be ideas on how to proceed in getting these communications to the entire membership.

October 23 I was guest at the annual meeting of the North Dakota Hospital Association in Bismarck. I believe it is very important that the North Dakota State Medical Association be represented each year for this conclave.

October 25 I represented the North Dakota State Medical Association at the first meeting of the expanded Mental Health Coordinating Committee as a member. Membership of this committee is 10. One member, Vern Lindsey, executive secretary, North Dakota Association for Retarded Children, was absent. Our state health officer, James R. Amos, M.D., was chairman and has information on the structure and function of this committee. Keith G. Vandergon, M.D., was a member representing the North Dakota Mental Health Association. Dr. Hubert A. Carbone, Dr. A. F. Samuelson, and Mr. Lyle A. Limond were among others present. I suggest that we all watch this committee carefully in that it is directly involved in the rapidly expanding national mental health program. Much of this program's guidance and financial support comes from the federal government.

November 1, I attended the annual conference of the North Dakota Mental Health Association at Bismarck. Much emphasis was placed on comprehensive state, area, and community mental health planning. In October 1963 a bill was passed in Washington calling for $329 million for construction of mental health centers, research and treatment centers for mental retardation, and for training of teachers of the mentally retarded and other handicapped children. This behooves us to be concerned about good medical guidance for these organizations.

November 15 I attended the meeting of the "North Dakota Chapter of the Academy of General Practice." This fine group displays a very sincere interest in the health care and general welfare of our people as well as in the scientific aspect of medicine. You will find most of them to be active in the state medical association.

November 20 to 25 involved visitations to Valley City, Traill-Steele, and Grand Forks district medical societies; then to Minneapolis for THE JOURNAL-LANCET meeting and the North Central Medical Conference. The assassination of President John F. Kennedy reduced the agenda of activities and cast a shadow of disheartenment over these last two meetings. Dr. Leonard W. Larson, Dr. Tom E. Pederson, and Lyle A. Limond of North Dakota participated in this North Central Conference. States represented were Minnesota, Nebraska, North Dakota, South Dakota, and Wisconsin. Topics were legislative roundups for each of the involved states, tuberculosis eradication in the North Central area, political outlook for 1964, "Care of the Whole Man" by Reverend Paul B. McCleave of the Department of Medicine and Religion, AMA, consideration of usual and customary fees—or "no fee schedule," and "Medicine's Challenges of the 60's" by Dr. L. W. Larson and Dr. E. R. Annis.

November 29 to December 7 involved the clinical or interim meeting of the AMA in Portland, Oregon. Much business was done on national and state levels, but it was almost anticlimactic to the June meeting in Atlantic City. We should all be proud of the excellent report given by the president of the Woman's Auxiliary, Mrs. C. Rodney Stoltz of Watertown, South Dakota, before the House of Delegates of the AMA. We should continue to encourage the ladies in their fine work.

December 13 to 15 concerned Fargo meetings with our Mental Health Committee, Council, Board of Directors of Blue Shield, and Emergency Medical Service Committee.

January 18, 1964, I attended the meeting of the Medical Economics Committee at Bismarck. Leslie O. Ovre, executive director of the Public Welfare Board of North Dakota was invited to this committee meeting and offered to cooperate with the North Dakota State Medical Association in every way. This new communication with an atmosphere of cooperation was commendable, and I hope it spreads to other government departments and medical committees.

February 29 the first meeting of the newly formed Committee on Constitution and By-Laws took place. This committee has a contemplated heavy agenda of work in the future, especially regarding indicated changes in our constitution and by-laws, plus the addition of the commission system for committee management to improve our communication at all levels in our state medical society.

March 19 and 20 were dates of meetings of the North Dakota Public Health Association at the Oak Manor Lodge in Fargo. This is a dedicated group with a small budget. Many of their speakers were associated with federal departments outside of North Dakota. Let us do as much as possible to supply them with North Dakota speakers if they request them. Dr. Keith Vandergon was outgoing president and Dean Ted Harwood of our medical school was incoming president.

March 21, 3 meetings were attended. First was our Committee on Public Health. One point discussed is the problem of inadequate control by the authorities in granting automobile driver's licenses. It is common knowledge that driver's licenses are being granted to applicants with severe physical and mental defects. Further action is needed to give these agencies the authority to refuse to grant licenses in specified situations. The physicians will be asked to cooperate in this effort. I intend to attend a national meeting in Denver, July 14, 1964, dealing with this problem.

Second was a meeting of our Committee on Medical Economics. Much time was spent on suggested changes in the Relative Value Schedule. These changes were recommended by various specialty groups contacted by this committee. I note that no major changes have been made, and I believe this wise in view of what I have learned from other medical societies. Please do not confuse Relative Value with Conversion Factors or addition of New Procedures.

Third, we had our first meeting of the newly organized Committee on Medicine and Religion. Mr. Arne E. Larson from the AMA Department of Medicine and Religion attended. Interest was high. This committee's function is expected to be gradual at the onset but, over a period of one to three years, can become one of the more influential aspects of our North Dakota State Medical Association.

Between the dates of September 24, 1963, and March 3, 1964, I was privileged to visit all 10 district medical societies, attend their official meetings, and participate in their programs. Lyle or Dan, or both, accompanied me to each meeting and participated. We were extended the finest of courtesy. The attendance was very good, and an interest was displayed for organized medicine. One question seemed to arise in a very small percentage—"If a medical meeting is not scientific, is it not political?" I would suggest that we "believers" take adequate time to further inform these few. There are also a very few who think the medical organizations are run by "closed clubs." Possibly some of these members are inadequately read on the constitution and by-laws of national, state, and district medical society organizations. Any "closed club" power is accidental and surely must be minimal.

Our present committee structure is as follows:

Standing committees	9
Special committees	16
Liaison and advisory committees	6
Total	31

In the past year the Committee on Veterans Service was discontinued. Two new special committees were appointed—the Committee on Constitution and By-Laws and the Committee on Medicine and Religion. A "Commission Format" for our medical society is under consideration. This change is expected to increase our communication to the membership and allow better coordination with improved overall efficiency.

"Operation Hometown" has had general organization over the state. It will require more impetus this fall.

For rebuttal to those who say, "The AMA is just a big powerful political lobby or labor union," I recommend 2 simple pamphlets obtainable without charge from the AMA or the state association office in Bismarck: (1) "American Medical Association Background Information"—basic facts about the AMA, its history, its purposes, its accomplishments. (2) "Organization and Operation of the AMA"—a guide for members of councils, committees, and editorial boards.

During the past year we have been confronted with a development which concerns all of us deeply. May I quote from the official records on the meeting of the Student American Medical Association in Chicago, May 1 to 5, 1963. "Subject: Federal Loans to Medical Students Through HR-12 (then follow 7 whereases). Be It Resolved, that the House of Delegates of SAMA go on record as being in favor of federal loans to medical students as proposed in HR-12, as a supplement to presently existing programs and Be It Further Resolved, that SAMA make its opinion on this bill known to the Appropriation Committees of the United States Congress." The passage of this resolution was a reversal of the stand taken in 1962 by the SAMA House of Delegates. Since the President has signed HR-12 into law, there has been additional pressure on the Woman's Auxiliary, state and national, to direct more of their donations directly to medical schools to be used as a 10% matching fund for federal loans to students. This would correspondingly decrease amounts donated to AMA-ERF. How shall we tactfully handle this situation without too much compromise?

Mr. Limond and I have attended multiple Blue Shield meetings this year. In my several years since serving on their board of directors, closer liaison with the North Dakota State Medical Association has developed, and we can be proud of their activities. The Blue Plans Operation in North Dakota appears to be superior to many others.

It is suggested that we all support our North Dakota COMPACT and our national AMPAC. The activity of these organizations does not rest with party affiliation, but with promotion and aid to candidates friendly to medicine and conservative in thinking. There are doubtless some of us who disagree with individual and isolated cases in these organizations' activities, but, without them, our combined voice would be much weaker, and we must have a strong voice. Remember, COMPACT and AMPAC are not part of the AMA or North Dakota State Medical Association, regardless of the fact that there is overlapping of membership.

I approach the termination of my presidency with strong feelings of gratitude and increased humility. How futile it would be to attempt this duty without enlisting and enjoying the help of our membership as a whole. The number of refusals in accepting time-consuming and difficult tasks was very small and always with good reason. Officers, councillors, and committee members all served faithfully.

I wish to express special appreciation to our executive secretary, Lyle Limond, and his staff—Daniel Buchanan, the Director of Public Information and Education; Margaret Fremming, our office Secretary, whom we all know so well; and Myrtle Kohler, who also assists "at the keys." The Chaplain "Lyle" took good care of your president at all times and "showed me the ropes" far beyond his call of duty. Dan is growing into his job exceptionally well. We have dedicated people working for us.

A. R. Gilsdorf, M.D., President

REPORT OF THE SECRETARY

The following report of the secretary is respectfully submitted:

MEMBERSHIP: The total membership for 1963 was 477. Of this number, 447 paid the regular membership fee, 2 paid one-half year's dues, 4 were on a limited basis, 2 were retired, and 21 were honorary members. One member was carried on a complimentary basis due to illness. Seven physicians passed away during the year, and several have left the state. New members, however, are being steadily added to our roster.

Table 1 shows the annual membership for the past five years.

Table 2 shows the annual dues payments according to the cutoff date for preparation of this report for the past five years. The cutoff date of April 3, 1964, has given members a grace period of five weeks in which to pay their current dues, even though the constitution and by-laws of the association state that all assessments must be forwarded to the secretary not later than the first day of March of each year. You will note that even with the extension of time, quite a large number of members are delinquent in dues payments.

TABLE 1

COMPARISON OF ANNUAL MEMBERSHIP

	1959	1960	1961	1962	1963
Paid memberships	418	418	436	436	449
Honorary memberships	24	24	26	25	21
Limited and retired	4	5	3	4	6
Dues canceled (Age exemption, illness, military service)	2	4	1	1	1
	448	451	466	466	477

TABLE 2

	April 12 1960	April 17 1961	May 1 1962	April 12 1963	April 3 1964
Paid-up members	335	348	374	388	412
Honorary members	22	27	25	21	25
To be honorary	5	2	2	1	1
Dues canceled	2	2	1	–	1
Limited	2	1	–	2	3
Retired	1	–	–	2	2
	367	380	402	414	444

STATE ASSOCIATION MEMBERSHIPS

1963—Total Membership 477

District	Regular	Retired	Limited	Comp.	Honorary
First	96	1	1		2
Second	36		1		3
Third	84		1		2
Fourth	58				2
Fifth	8				1
Sixth	80	1		1	5
Seventh	34		1		2
Eighth	18				
Ninth	24				4
Tenth	11				
	449	2	4	1	21

1964—Total Membership 444

District	Regular	Retired	Limited	Comp.	Honorary
First	95	1			2
Second	21				3
Third	75	1	1		2
Fourth	58				5
Fifth	8				2
Sixth	74		1	1	6
Seventh	32		1		2
Eighth	17				
Ninth	24				4
Tenth	8				
	412	2	3	1	26

AMA GENERAL MEMBERSHIPS

	1963	April 3, 1964
First	97	96
Second	39	22
Third	87	78
Fourth	60	60
Fifth	9	10
Sixth	85	80
Seventh	37	35
Eighth	17	16
Ninth	27	26
Tenth	8	8
	466	431

Representation in the House of Delegates is based on one delegate for each 15 paid-up members (or major fraction thereof), together with honorary members. Delegates from the local societies should be seated on this basis, so it is essential that dues be forwarded promptly.

The continued cooperation on the part of all members will be greatly appreciated.

Wm. M. Buckingham, M.D., Secretary

REPORT OF THE EXECUTIVE SECRETARY

GENERAL COMMENTS: Your executive secretary attended several state, regional, and national meetings in behalf of the association.

This year we celebrate the 77th birthday of the association. Your executive secretary began his thirteenth year as of February 18, 1964.

Mrs. Margaret Fremming, office secretary, began her fourteenth year with the association.

Mr. Daniel E. Buchanan, Director of Communications, came to us on October 1, 1961, and is showing steady progress.

Mrs. Myrtle Kohler, office assistant, joined us in March 1962.

The routine of the headquarters office continues to show an increased tempo as each year passes. This increase is due to increased emphasis in the areas of medical economics, legislation, medicare, public relations, State Board of Medical Examiners duties, and general services to the members.

LEGISLATION: Our greatest efforts this year have been directed toward the defeat of the King-Anderson Bill. The Johnson Administration is determined to pass this Bill.

PUBLIC RELATIONS: Mr. Daniel E. Buchanan has been assigned, primarily, to this area of the association's activities. It is this writer's opinion that progress is being made in this field of our endeavors. Mr. Buchanan is to be commended for his efforts in attempting to implement the "Operation Hometown" program on the district medical society level. Mr. Buchanan will be stepping up his efforts in the field of personal contacts with individuals throughout the state. It is most important in the field of public relations that these personal contacts, with persons outside of medicine, be made and maintained.

Our relationship with Blue Shield remains strong in the area of public information and education.

PHYSICIAN'S PLACEMENT SERVICE: This office continues to give service to communities and/or medical groups seeking physicians.

U.N.D. MEDICAL SCHOOL SCHOLARSHIPS: The 1963 winners of the association's scholarship prizes (totaling $500) offered at the school of medicine were as follows:

Highest average mark in physiology and pharmacology—
Robert E. Hieb, Woodworth
Highest average mark in microbiology—
Horst S. Filtzer, Fargo
Highest average mark in pathology—
Horst S. Filtzer, Fargo
Highest average mark in anatomy—
George F. Welsh, Bismarck
Highest average in the work of the first year—
John H. Bond, Jr., Fargo.

FINANCE: The treasurer's report continues to show an improved balance. The goal of having one year's operating budget in reserve was maintained last year when you consider the certificates of deposit in the headquarter's office account. It is hoped that this reserve can be kept at this level, as it should be, in the interests of good business practice.

Receipt of dues picked up a little this year.

MEDICARE: The Dependents' Medical Care Program (Medicare) commenced on December 7, 1956. Up to January 1, 1964, 9,444 claims had been processed by this office.

The total sum paid to North Dakota physicians as of December 31, 1963, amounted to $773,270.

Each claim for services rendered averages out at $81.88.

THOUGHTS FOR THE FUTURE:

1. As citizens, we must take a greater interest and play a more active part in politics beginning on the local level. This is an important election year.

2. In our public relations program, thought must be given to securing additional allies in combating the continued growth of the "welfare state" philosophy.

3. Plans should be made shortly so that a positive program of health legislation will be ready for presentation to the next (39th) legislative assembly in January 1965.

ACKNOWLEDGMENTS: Your executive secretary wishes to express his sincere appreciation to our president, Amos R. Gilsdorf, M.D., for his splendid efforts in behalf of this association. Dr. Gilsdorf made many trips both in and out of the state on association business.

My sincere thanks also go to those other members with whom this writer has had occasion to work this past year on committee assignments and the several other programs of the association.

Lyle A. Limond, Executive Secretary

REPORT OF THE CHAIRMAN OF THE COUNCIL

The first session of the council was held Saturday, May 4, 1963, in Dickinson. The meeting was called to order at 10 A.M., by Dr. G. W. Toomey. The secretary, Dr. C. H. Peters, called the roll, and the following councillors responded:

Drs. Frank DeCesare, R. W. McLean, Tom Pederson, E. H. Boerth, G. Christianson, Ralph Mahowald, Frank Naegeli, Dean Strinden, and Keith Foster.

Others present were: Drs. C. J. Glaspel, E. J. Larson, Amos Gilsdorf, William Buckingham, J. D. Craven, Lee Christoferson, and C. M. Lund and Mr. Lyle Limond and Mr. Charles Johnson, Field Service Division of the American Medical Association.

It was moved, seconded, and passed that the minutes of the previous sessions be accepted as printed in the council agenda. Motion passed.

The first order of business consisted of the reapproval of the budget. Dr. Mahowald brought up the subject of reinvesting bonds and, after some discussion, the councillors asked Dr. E. J. Larson, who has so ably handled this in the past, to check into this matter again.

After discussing the problem of delinquent dues, Dr. Ralph Mahowald moved that each councillor be notified of delinquent dues in his district by March 1, so that some effort could be made to collect these dues and get them in to the state treasurer before April 1. Dr. Foster seconded this motion. Motion passed. I think you are all aware of the fact that delegates are appointed on the basis of 1 for each 15 members or fraction thereof in each society. If 15 members or a major fraction thereof have not paid their dues, that delegate will not be seated at the meeting of the House of Delegates.

Mr. Lyle Limond advised the council that according to their wishes of a previous meeting, one year's advance budget is held in reserve at this time, and the association has been able to maintain that goal. This is only good business practice. If there are enough delinquent dues, of course, this cannot be maintained, as the dues are our only source of revenue.

Dr. J. Arthur Myers of The Journal-Lancet appeared before the council and gave a very interesting and informative talk regarding the future plans of publications in The Journal-Lancet. He stated that within the past two years they have received more manuscripts from the North Dakota doctors than in the past. He asked that the contract of the association with The Journal-Lancet be renewed so that they can make their plans for the Centennial Celebration. He advised the council of the proposed plans for the Centennial Celebration of The Journal-Lancet Publications.

The chairman read a letter received from Mrs. Violet Jane Oleson, executive director of the Arthritis and Rheumatism Foundation, North Dakota chapter, asking for the endorsement of the North Dakota State Medical Association for this foundation. Dr. Peters explained the material which had been received concerning said foundation.

Dr. Pederson and Mr. Charles Johnson explained to the councillors that the American Medical Association appointed a liaison committee to work with such groups and that perhaps such a procedure would be acceptable to the North Dakota State Medical Association. Dr. McLean moved, that due to the first paragraph of this letter, that this be tabled indefinitely. There being no second at this time, and because Mr. Irwin, regional director of this Foundation, was to appear before the council in the afternoon to state his case, the consensus of opinion was that he should be heard before any action be taken. Dr. Pederson moved that the council submit a resolution to the House of Delegates asking for the appointment of a special committee to act as a liaison committee for all of these voluntary health fund agencies. Dr. Foster seconded this motion and the motion passed. Dr. Toomey appointed Dr. Pederson and Dr. Foster to draw up this resolution during the noon recess.

A discussion concerning correspondence received from the Medic-Alert Foundation of California resolved itself in a motion that Dr. John Swenson, Chairman of the Public Relations Committee, be informed of this program and instructed to inaugurate such a program in this state. Dr. Mahowald seconded this motion; motion passed. Mr. Limond was asked to advise the Medic-Alert Foundation in California that North Dakota is instituting its own program.

Two resolutions were brought to the council and were in turn submitted to the Committee on Resolutions of the House of Delegates.

The first resolution concerned the establishment of a new committee, or through existing committees, studies to be carried out in conjunction with the State Mental Health Association and the Legislative Research Committee of the state legislature. The purpose of such study would be to outline the most practical method of directing, coordinating, and supervising the state hospital for retarded individuals, the state mental hospital, community mental health services, and allied mental health programs in the state of North Dakota, the recommendations of the study to be completed for presentation to the 1964 House of Delegates for consideration and endorsement.

The next resolution concerned the assigning of Indian patients to specific doctors and resolved that the district medical society is in favor of setting up a permanent committee on Indian affairs as a watchdog over the implementation of policy regarding medicine as it relates to the Indian population.

The meeting was recessed at 11:30 A.M. to reconvene at 1:30 P.M.

The council reconvened at 1:30 P.M. The councillors all responded to the roll call, and other doctors present consisted of the group present in the morning.

Dr. Pederson presented a resolution asking that the president of the state medical association appoint a committee entitled "Voluntary Health Fund Liaison Committee," whose function it will be to act as liaison between health funds and the state association. The resolution was referred to the Committee on Resolutions of the House of Delegates.

Mr. Ruel C. Irwin, Madison, Wisconsin, regional director of the Arthritis and Rheumatism Foundation, and Mrs. Violet Jane Oleson, aforementioned in this report, appeared before the council to explain the plan for North Dakota and ask for endorsement.

After many questions, the representatives of the foundation were excused, and, after much discussion, the matter was tabled, and Mr. Limond was instructed to call the executive secretary in Minnesota to find out the feeling toward this plan in Minneapolis where it was then in effect. Also, Mr. Limond was asked to invite Dean Harwood to appear before the council on Sunday to report on this plan.

Mr. Limond next reported on "House Resolution No. 8," introduced by Representative Maragos of Minot. This consisted of the appointment of 5 members from the state legislature, along with 3 members from the state medical association to work together, investigate, and offer recommendations as to how the operation of the state hospital at Jamestown may be improved. This was to be presented to the House of Delegates.

Mr. Limond then explained "House Concurrent Resolution 'S' " which also was presented to the House of Delegates. This concerned a study by the Legislative Research Committee concerning North Dakota welfare laws, policies, programs, administration, and enforcement with the special emphasis as to the need of medical advisory committees. It might be said here that a committee from the state medical association met with the Legislative Research Committee in Bismarck during the summer concerning this matter. Members of your committee consisted of Drs. G. W. Toomey, Robert Ulmer, Tom Pederson, M. E. Nugent, James Little, and Lyle Limond. I believe the meeting was very fruitful. We were able to present our side of the question and I think the Legislative Research Committee was very receptive to our recommendations.

Dr. Peters, in discussing "House Concurrent Resolution 'S,' " urged each councillor in his district society to appoint a committee to gather information to present to the Legislative Research Committee. He stated also that perhaps it would be wise to have a medical board set up so that when the session is called, the board would be available to present medicine's viewpoint. The members named above made up the board at this particular meeting; however, it seems that there should be a more coordinated permanent committee in each district and on the state level to gather information from each district concerning elimination of alleged abuses that may have occurred; some ideas of how this could be done in a better way at less cost; presenting these plans or solutions of these problems individually from each district so that there will be a wide diversity of problems. Dr. Pederson moved that each councillor keep this in mind and see to it that these committees are appointed. It would be interesting to know how many districts have carried out this suggestion.

Dr. Christoferson asked for a vote of confidence from the council regarding delinquent dues and the seating of delegates in the house. Dr. Strinden moved that the constitution and by-laws be strictly adhered to in regards to the seating of the delegates in the house from those districts which are delinquent in their dues. Dr. Pederson seconded this motion. However, after checking the wording of the constitution and by-laws, Dr. Strinden rescinded his first motion, and Dr. Pederson rescinded his second. Dr. Strinden then made the motion that Dr. Christoferson be given the council's backing on his stand; Dr. Foster seconded this motion. Motion passed.

The chairman of the council presented the resolution, "One Foot in the Trap," from Dr. W. W. Boswell, chairman of Political Action Committee, Winnebago County Medical Society, Rockford, Illinois. This concerned endorsement of HR-12, the Health Professions Educational Assistance Measure. The Winnebago County Medical Society felt that the AMA had made a serious mistake in sanctioning the approval of this bill. A resolution was then read endorsing the position of Rockford College which refused to accept federal aid. Mr. Charles Johnson from the AMA explained this resolution and the stand of the AMA on this subject. The matter was referred to the Committee on Resolutions of the House of Delegates and the results are in the proceedings of the House of Delegates.

Dr. Craven advised the councillors that Dr. Spear, past president of the association, is an invalid in his home in Dickinson and that he felt that greetings should be sent to Dr. Spear from the council. It was agreed that Dr. Craven, Dr. Boerth, Dr. Toomey, and Dr. E. J. Larson, president of the association, call on Dr. Spear Sunday afternoon.

The meeting was duly adjourned.

SECOND SESSION

Sunday, June 5, 1963, Dickinson, North Dakota.

Dr. G. W. Toomey, chairman of the council, called the meeting to order at 4:30 P.M. Dr. C. H. Peters, secretary, called the roll, and the following councillors responded:

Drs. Frank DeCesare, Tom Pederson, Frank Naegeli, E. H. Boerth, Dean Strinden, Keith Foster, G. Christianson, R. W. McLean, and R. H. Mahowald.

Others attending were: Drs. E. J. Larson, A. R. Gilsdorf, Wm. Buckingham, J. D. Craven, Lee Christoferson, R. C. Painter, and R. D. Nierling, and Mr. Limond and Mr. Dan Buchanan.

Dr. Boerth advised the councillors that when Dr. G. W. Toomey was elected as second vice-president of the association in the afternoon session of the House of Delegates, the Nominating Committee did not designate a councillor to replace Dr. Toomey. As there is nothing in the constitution and by-laws that stipulates Dr. Toomey cannot serve his term as councillor, it is up to the councillors to decide whether they wish him to continue as councillor. Dr. McLean made the motion that Dr. Toomey serve his term as councillor. Dr. Pederson seconded the motion. Motion passed.

The chairman introduced Dr. Donald McCarthy, president of the Minnesota State Medical Association. We were very fortunate in having him at our meeting and were able to get some information from him regarding the Arthritis and Rheumatism Foundation and how it was working in Ramsey and Hennepin Counties in Minnesota. Dr. Amos, state health officer of North Dakota, appeared before the council with some pertinent facts relating to this foundation. In view of the information obtained, and after much discussion, Dr. Mahowald moved that the request of this foundation be tabled. Dr. McLean seconded this motion. Dr. Foster moved to amend this motion to include, "That further information be gathered about this foundation before the December council meeting so that the councillors may be better prepared to study this request before acting upon it." Dr. Strinden also moved that this motion be amended to add, "That the Committee on Public Health be asked to gather this information." Dr. Mahowald amended his motion to include the above items, and Dr. McLean seconded the amended motion. Motion passed. The councillor from the First District abstained from voting on this motion.

Mr. Limond read correspondence from Dr. Amos reporting on the project of Home Nursing Care for the Chronically Ill and Aged of Fargo, North Dakota. This included a brief rundown on the progress of this program for the first year of its operation. Dr. Amos answered the councillors' questions regarding this program very well, as he had received advance notice from the chairman of the council that we wished specific figures on the progress during the first year of this program. From the figures presented, and the patients covered, it would not seem economically feasible to the writer that this be a general program over the state.

Dr. Toomey informed the councillors that Mr. Limond, Dr. Peters, and Dr. Pederson and himself inspected the medical technology program at the Minot State Teachers College in January 1963. They could only give their highest approval of the curriculum and facilities offered at Minot, and this school was approved shortly afterwards. We felt this was a very worthwhile trip.

The contract with THE JOURNAL-LANCET was renewed.

Dr. Strinden discussed the possibility of getting a copy of Dr. McCannel's manuscript, presented before the Association several years ago, on the medical problems of Saskatchewan. Mr. Limond was asked to check into this matter and also to check Dr. Brand's paper, "The Saskatchewan Story," which was to be presented at the scientific program on Tuesday, May 7.

Dr. Toomey called for election of officers. The results of the election are as follows:

Dr. Toomey, chairman; Dr. Tom Pederson, vice-chairman; Dr. Peters, secretary.

Date of the interim meeting of the council was set for December 14, 1963, at 10 A.M. in Fargo, and the meeting was set up for the executive committee to be held Friday night, the 13th, preceding the Saturday meeting.

Dr. William Buckingham, secretary of the association, urged that each councillor bring to the attention of his district society the resolution passed in the house regarding the appointments to the State Board of Medical Examiners by the governor of the state, particularly stressing the last paragraph of the resolution, that no member of the association accept an appointment to the Board of Medical Examiners by the governor unless he has been endorsed by the House of Delegates. If a member is asked to serve by the governor and has not been endorsed by the House of Delegates, it is requested that such a member decline this appointment.

There being no further business, the meeting was duly adjourned at 6 P.M.

INTERIM COUNCIL MEETING

Saturday, December 14, 1963, Fargo, North Dakota.

Councillors present were Drs. G. W. Toomey, chairman, C. H. Peters, Frank Naegeli, G. Christianson, R. W. McLean, Ralph Mahowald, T. E. Pederson, Frank DeCesare, Dean Strinden, and E. J. Larson. Dr. Keith Foster was absent because of illness.

Others present were Drs. Robert Painter, E. H. Boerth, Wm. Buckingham, A. R. Gilsdorf, and G. A. Dodds and Mr. Lyle Limond and secretaries Margaret Fremming and Myrtle Kohler.

It was moved, seconded, and passed that the minutes of the previous meetings be accepted as printed in the council agenda.

The first item on the agenda was the proposed budget for the year 1964. The several increases in the budget items were explained to the members present by Dr. Peters.

After some discussion, it was moved and seconded that the executive secretary, Mr. Limond, shall have the power to hire and fire his own office personnel without having to go through the red tape of discussing it with the council. It was felt that he is best qualified to know what he needs for smooth function of his office, and such action relieves the council of added unnecessary discussion regarding problems of which they could not have sufficient cognizance.

There was general discussion regarding delinquent dues, and all members agreed that the deadline of March 1 should be maintained for members to forward their dues in order for them to reach the state treasurer before April 1.

Dr. Toomey discussed the Student American Medical Association chapter at the University of North Dakota. He informed the council that inasmuch as they were raising their own funds to send 2 delegates to the national meeting, there perhaps would be no need for further support by the association.

The council was informed that the books of the association are audited by Person and Gustin, Bismarck.

Mr. Arne Larson and Mr. Fred Eberlein, American Medical Association, Chicago, appeared before the council to explain the program of the AMA's Department of Medicine and Religion. They gave a very interesting report, explaining that a relationship between the 2 disciplines is necessary and that each agrees that the total health of man is their goal. Mr. Larson stated that all pilot programs so far have proved satisfactory and productive. It was suggested that patients often need the counsel of physician and clergy and that both professions need each other. It was suggested by Mr. Larson that a group take responsibility within each of the districts to work out the program.

Mr. Larson explained 3 general areas of the program of medicine and religion which include (1) hospital, pastor and clinical education, (2) medical school and nurse education, and (3) physician-clergy relationship in total patient care.

It was felt by the council that this program should begin and a state committee on medicine and religion be appointed. The president of the association, according to the by-laws, has the authority to appoint such a committee, and Dr. Gilsdorf stated he would do so, possibly before the May meeting of the association.

Dr. Pederson made a motion that the council approve the plan and implementation. It was seconded by Dr. DeCesare and approved.

The meeting recessed for lunch.

Dr. G. W. Toomey reconvened the council at 1:30 P.M. and opened the afternoon session with the introduction of Dr. A. C. Kohlmeyer, chairman of the Mental Health Committee, and Dr. A. F. Samuelson, mental health authority, State Department of Health. Drs. Samuelson and Kohlmeyer's remarks concerned a statewide survey being presently carried out to determine how communities may be assisted in planning and providing comprehensive mental health services.

It was explained that a $50,000 per year planning grant has been made available to North Dakota for a two-year period. It was also stated that the Mental Health Coordinating Committee, created by the 1961 legislature, has recently given its go-ahead to the carrying out of the two-year study. The purpose of the study is to develop a plan for the provision of comprehensive mental health services in North Dakota, with the primary emphasis on expanded services at the community level.

It was stated that in carrying out the survey, the Division of Program Evaluation and Planning, State Department of Health, had divided the state into 8 regions. This division would appoint a regional chairman, who in turn would appoint county chairmen in the several counties in that region. The county chairman's task would be to contact such persons as judges, public health nurses, directors of county welfare boards, physicians, and others whose work puts them in touch with possible mental health problems. It was added that the needs in each region for mental health services would be discussed by the persons contacted through the regional and county chairmen and plans for that particular region laid by that group.

At this time, according to Dr. Samuelson, the emphasis of the survey work was being directed toward the securing and orienting of regional chairmen. Questionnaires were also being considered which would be given to administrators of institutions to help them determine how best they could improve services for mental illness in their particular institutions. The questionnaires would also draw attention to such areas as referral policies for the mentally ill, resources available, and admission practices for persons with mental illness.

It was emphasized that the State Department of Health saw its role as primarily one of assisting communities in meeting their responsibilities in the management and rehabilitation of persons suffering from mental illness and related disorders.

General agreement was voiced that mental health services seemed to be coming under the jurisdiction of nonmedical people, such as psychologists, social workers, and public welfare personnel. The council insisted that medical direction and supervision be inherent in any proposals dealing with mental health. It was also the feeling of the councillors that medicine be given an opportunity to help the state health department in the survey and planning for the provision of mental health services in the state.

Close and frequent questioning failed to reveal just exactly how the chairman in each district was to be appointed. This was a real ambiguous area. A motion was made by Dr. Mahowald that the association give support to the mental health survey being conducted by the State Department of Health. It was seconded by Dr. DeCesare and passed, Dr. Peters and Dr. Toomey abstaining.

In his concluding remarks, Dr. Samuelson asked the councillors to assist his office by encouraging at least one physician in each of the districts to participate in the mental health survey and planning presently under way. He also requested that the councillors take steps to allow him to present his division's program to the district societies across the state. There was no council action on the latter 2 requests. There is no question but what this program is upon us and the writer can only urge that the members in their respective districts get on these local boards and obtain as much medical direction on these boards as is possible.

Members of the council next considered Resolution 14, passed by the House of Delegates at Dickinson in May. Resolution 14 had come out of the house, since nominees made by that body for positions on the State Board of Medical Examiners were being disregarded by the governor. The resolution asked that appointments which should have been made in 1962 be made, that precedent called for appointments being made by the governor from a list of nominees submitted by the House of Delegates, and that physicians not nominated by the House of Delegates decline such appointment, should it be made.

In the discussion that followed, the suggestion was made that perhaps no names be submitted to the governor in the future, as names previously submitted to him had been ignored. Also discussed was the possibility of the association's drawing up legislation to amend the present statute under which appointments to the Board of Medical Examiners are made. Through such legislation, it was felt the wishes of the House of Delegates would be followed. It was the final decision of the council that no action or recommendations be made at this time.

Discussion followed concerning the annual sessions of the House of Delegates. It was the general consensus that the handbook for their use does not reach them in sufficient time for proper study, and it was the opinion that all reports should cover the period March through March and all reports be forwarded to the office of the executive secretary at that time. Resolutions, other than those which can be easily formulated to cover the actual workings of the annual meeting, should also be presented well in advance so that they, too, may appear in the handbook for early study. Notification will be sent to all councillors, committee chairmen, and so on, advising them that an early report of their activities will be required. It is felt that committees, such as the Resolutions Committee, have far too much to do in one evening to actually study out the resolutions and give them good, sound consideration.

The work of the Grievance Committee on a district medical society level was discussed fully, and it was also drawn to the attention of the council that the Grievance Committee on a state level (council) is rather loosely set up with no standard procedures set forth. A motion was made by Dr. Peters that Mr. Limond be directed to see the legal counsel, Mr. William Daner, regarding the setting up of orderly procedures for the use of the Grievance Committee on both the district and state levels. The motion carried with Dr. Mahowald abstaining.

The council was informed that a committee on constitution and by-laws had been appointed by Dr. Gilsdorf, pursuant to Resolution 12. Members included: Drs. C. H. Peters, chairman; J. C. Fawcett; Lee Christoferson; O. A. Sedlak; and O. W. Johnson. Dr. Peters stated that the committee had not yet met. However, he assured the council that his committee would meet and study Resolution 12, along with other possible revisions of the constitution and by-laws. Dr. Naegeli made a motion, seconded by Dr. Pederson, that the council favors no change in the present method of selection of councillors. Carried.

Concerning this resolution, district 2, Devils Lake District Medical Society, has reconsidered its resolution and rescinded same. After due consideration, it was felt that this resolution actually takes all powers away from the House of Delegates. The council is responsible to the House of Delegates and is its executive body, the function of which is to carry out all business concerning the medical society between meetings of the House of Delegates. If the power to appoint its own council is taken away from the House of Delegates, we can just as well disband said body, as they are powerless. It would seem that this would be the same as the AMA House of Delegates not being able to appoint its own board of trustees. It is hoped that this amendment will be defeated by the House of Delegates.

Mr. Lyle Limond presented a plaque from AMPAC to Dr. Robert Ulmer, chairman of COMPACT in North Dakota, for his efforts in the program and a job well done.

A motion was made by Dr. Naegeli that the association go on record voicing full support to COMPACT, seconded by Dr. DeCesare, and carried.

Mr. Limond advised the council of a suggestion he had received asking that the special session of the House of Delegates, to be held in the late fall of 1964, be scheduled at the same time as the Interim Council meeting. It was decided to hold the winter council meeting on Saturday, December 12, 1964. The councillors agreed that it would be a good idea for the house to consider meeting for its special session on Sunday, December 13, 1964. In that way, they felt more continuity between the council, and the house would be assured.

Mr. William Stafne, president, North Dakota chapter, Arthritis and Rheumatism Foundation, appeared before the council to discuss the proposed program of his organization. He said it was the wish of his group to apply for a federal research grant with which to begin their work. The council was asked for approval of the project which Dr. Stafne discussed. Many questions and comments about the proposal were directed to Dr. Stafne by members of the council. After considerable discussion, Dr. Pederson moved that the topic be tabled until the evening session. This was seconded by Dr. Naegeli and it carried. The writer remembers 2 things of note at this stage of the meeting. First, the very well-prepared brochure that Dr. Stafne had gotten together and mailed to all members of the council before the meeting so they could give it their time and consideration and be informed. Second, the question was asked Dr. Stafne what his attitude would be, should the council not approve this program. He immediately said he would have nothing to do with it. He is to be very highly commended for this attitude.

Dr. Toomey next introduced Dr. James R. Amos, state health officer, who outlined a proposed project designed to improve infant immunization. In general, the project would consist of a letter and an interim immunization card being sent from the health department to the parents of each newborn child. The letter would request them to complete the initial immunization of their child within about one year. On completion of the initial immunizations, the family physician would sign the interim card, and it would be returned to the health department. On receipt of such card, the health department would issue a permanent card which would include the immunization information plus other known facts, such as blood type and Rh factor. It would also be possible to record booster immunization data on the back of the card. Some members of the council felt this was a duplication, since records of immunizations are now being kept in the offices of physicians. Dr. Peters moved that a complete detailed program of improved infant immunization be drawn up showing the structure and mechanics and also financing in cooperation with the Committee on Maternal and Child Welfare and be returned to the council for consideration. This was seconded by Dr. Christianson, and the motion was carried.

Mr. Limond advised the council that Mr. T. N. Tangedahl, director, Division of Children and Youth, Public Welfare Board of North Dakota, would support the Battered-Child Syndrome Bill in the 1965 legislature, if the North Dakota State Medical Association would endorse it. Motion was made, seconded, and carried that this information of the proposed bill be given to the Committee on Legislation.

The state association office was asked to remind the secretaries of the district medical societies that when they notify their members of 1964 dues, a society may possibly want to consider suggesting contributions to AMPAC and COMPACT, on a voluntary basis, along with their statements to members.

The subject of availability of physicians on weekends in university cities was briefly discussed, but no formal action was taken.

A letter was read by Dr. Toomey from Dr. C. M. Lund requesting funds for the Cancer Committee to buy and distribute a pamphlet on carcinoma of the cervix. The council felt that the purchasing and distribution of this pamphlet should be handled through the North Dakota Division of the American Cancer Society, through its Committee on Professional Education. It was felt further that if the council approved funds for a cancer pamphlet, it would soon be asked to approve funds for the purchase of other materials not within its ability to provide.

Dr. Pederson made the motion that this request be declined. Dr. Mahowald made an amended motion that this request be declined and the matter referred to the Committee on Cancer. Seconded by Dr. McLean and carried.

Dinner recess was declared.

The meeting reconvened at 8 P.M. after the dinner recess.

Dr. J. R. Amos reappeared before the council and briefly discussed a program of radiation inspection which the health department planned to carry out to assure the safety of technicians operating radioactive equipment, particularly X-ray units. He also gave his thanks for the cooperation of the North Dakota physicians in the Cornell Automotive Crash Injury Research Project conducted in the state. In closing, Dr. Amos noted the outstanding job done by the medical profession in sponsoring mass immunization clinics for polio during 1963.

The proposal outlined earlier by Dr. Stafne was brought before the council for further consideration. After thorough discussion by the councillors, Dr. Mahowald moved that the council decline giving support to the proposal of the North Dakota chapter, Arthritis and Rheumatism Foundation. The motion was seconded by Dr. McLean and carried unanimously. In taking the foregoing action, the council instructed Dr. Mahowald to direct a letter to Dr. Stafne explaining the position of the council in declining support of the foundation's program.

The next item for discussion was a progress report, together with recommendations from John A. Swenson, M.D., chairman of the Committee on Public Relations.

(1) The 2 systems of emergency medical identification as studied by the committee, Medic-Alert Foundation, Turlock, California, and a program developed by the AMA. This consists of a billfold-size card on which the bearer's pertinent medical information is to be entered. It was the unanimous opinion of the committee that the plan as presented by the AMA be adopted, and it was recommended that each of the district medical societies be strongly urged to purchase and distribute AMA's identification cards to the public.

It was moved, seconded, and carried that the above recommendations be adopted.

(2) Code of cooperation among physicians, hospital, and news media. A subcommittee, chaired by Dr. Mahowald, is at work on its second draft of the code and at a later date this group will ask the Public Relations Committee to adopt its work. When medicine's portion of the code has been accepted, it will be submitted to the council for approval to begin meeting with the representatives of the other groups involved in the code of cooperation.

(3) Conference of officers and committee chairmen. Recommendations were proffered for improvement in this type of conference, to be held again in the future. New physicians, particularly, should be made aware of all aspects of the AMA and the North Dakota State Medical Association and a long-range program formulated. It was suggested that a copy of the constitution and by-laws be sent to each new physician in the state, together with an invitation to join their local district medical society. Blue Shield and the AMA will be requested to furnish literature to accompany such invitation to clarify the workings of organized medicine in North Dakota. The educational approach to the new practitioner is the ideal one. Participation by auxiliary members is essential and valuable.

It was moved, seconded, and carried that wholehearted support be given to future conferences.

(4) Operation Hometown. It was recommended that this program be further implemented on the local level. It was recommended by Dr. Mahowald that a subcommittee to the Public Relations Committee be formed primarily to implement Operation Hometown. Seconded and carried. It is my impression that Operation Hometown has not been going over very well at the district level. I can only speak from experience concerning district 2; however, on talking with the 2 chairmen I appointed, they are rather discouraged at the support they are receiving. Properly implemented, this is certainly a valuable and necessary adjunct to our fight against socialized medicine.

The auxiliary was commended for its participation in the program, and Mrs. Hankins, president, is to be asked for similar aid in the future.

Discussion followed with reference to medical students being invited to the various meetings held within the association. Orientation into organized medicine should start with the student, for proper guidance. It was suggested that the interim session of the council would be an ideal time for such an invitation to be extended, and the executive secretary was instructed to include this on the agenda for the May council meeting.

Dr. Toomey was delegated to present the awards to the graduating class at the U.N.D. School of Medicine in June 1964.

Mr. Limond next read a letter he had received from Medical Economics, regarding North Dakota's Good Samaritan Law. The general impression was that the law was well written and completely acceptable. Dr. Pederson moved that the secretary of the council should answer the letter from Medical Economics on the Good Samaritan Law. Motion seconded and carried.

It was suggested by Dr. Mahowald that at future meetings, any reports, recommendations, or requests be presented to the council in writing prior to the meeting, if at all possible, thus saving a great deal of time and discussion. It was also suggested that those presenting themselves with requests or problems before the council be very well prepared to answer questions rather than stumbling and evading questions or having no answer at all.

In accordance with a request made at the council meeting on May 4, 1963, Dr. E. J. Larson reported that he had checked with his banker and lawyer in the matter of reinvesting bonds being held by the Association. It was their opinion that the bonds be maintained as they are at present.

Motion made by Dr. Strinden that the interim meeting of the council be adjourned. Seconded by Dr. McLean and carried. Adjournment at 9:15 P.M.

The writer realizes that this is a long, involved tedious report. However, there have been just enough whisperings of dissatisfaction and insinuations of secrecy concerning meetings of the council that I feel a very detailed report is absolutely necessary and beg your indulgence.

G. W. TOOMEY, M.D., Chairman of the Council

REPORT OF REPRESENTATIVE TO THE NATIONAL MEETING OF THE AMA AND ANA

Your chairman of the council, Dr. G. W. Toomey, attended the National Meeting of the AMA and ANA in Williamsburg, Virginia, February 13 to 15, 1964.

To the flying physicians of the state, I might mention that February is not the ideal month to fly the Allegheny region.

This meeting was the first of its kind, its purpose being to (1) solve problems regarding the administration of better patient care and (2) solve differences between the nursing and the medical professions.

Many interesting points were brought out at this meeting. But, in its entirety, it was most confusing—not only to me but to many of the men to whom I talked. I can only give you a few of my impressions and deductions. They are entirely my own, and other men who attended this meeting may disagree with me.

The meeting was very well organized and had the following format. The entire attendance was divided into conference groups. These groups were all set up before one arrived at the meeting. The conference groups had their sessions, following which there would be a meeting of the entire delegation where salient points brought out in the conference groups were discussed and debated upon. I happened to be the only practicing physician in the conference group that I sat in with. There were no heated discussions in our group. However, I understand there were quite a few such discussions in some of the other conference groups. My impression was that the discussions were dominated by the nursing group. There were many nurses from many facets of nursing. However, most discussions were carried on by Ph.D.s, master degree nurses, and members of the profession who were government employees.

It is difficult to know just exactly what the nursing profession desires. The theme of the meeting would seem quite simple in its solution, "How to Give Patients Better Care." One might say that this is easy. All we have to do is (1) provide more nurses, (2) raise the salary of nurses to the point where more girls will be attracted to the profession, and (3) stop diluting our present supply in the manner in which we are doing, providing more nurses for direct patient care and fewer for such functions as public health nurses, school nurses, office nurses, and so on. However, the problem goes much deeper than this.

My impression is that the hierarchy of the nursing profession, those with Ph.D. degrees, are interested mainly in making what they term "a profession of nursing" which is practically independent. One heard a great deal about, "What is the definition of a nurse?" I never did hear one that really filled the bill, at least, nothing new. Some of the degree nurses feel very strongly that nurses should not be employed for menial tasks. A nurse in my conference group, a retired Ph.D., stated it was a waste of nursing talent to have a nurse scrub in the operating room, since technicians could do the job just as well. It was brought out that the nurses felt the doctors were unnecessary, postoperatively, after two or three days and that nurses should be given more freedom in using their own judgment regarding such functions as getting the patient up and taking care of the patient after surgery during his first two or three postoperative days. Of course, it was pointed out to them, they would have to accept many new legal responsibilities under such a system. The statement was made that the old Florence Nightingale concept of nursing is a thing of the past. It seems to me that the educational people in the nursing profession feel that it is beneath their dignity to practice the nursing arts. We, as doctors, surely cannot buy this philosophy.

It was brought out that the American College of Surgeons is now implementing a pilot program of pulling individuals in at random and making nursing technicians out of them in two or three months. This, of course, proves nothing. It only points out the fact that this is a program set up in self-defense. With the nursing supply in such shortage, one has to look elsewhere for help, which is necessary and indispensable in the operating room.

The program speakers were obviously all from large teaching institutions. I believe they have no concept of the problems over the rest of the nation, especially problems in rural areas and small nonteaching institutions and small community hospitals.

In one conference, it was pointed out by Dr. Riggs of the AMA that one of these degree nurses would be of no value to the writer out in North Dakota whatsoever. I can only say that this is true, but, let us have these degree nurses for two to three months and they will be extremely valuable, and they will be much easier to teach, having had good basic training, than someone who has had no basic training. This is beside the point, as we just do not have the supply of even the degree nurses.

On going over one of the charts, I find that we are among the few lucky states that have over 300 nurses per 100,000 population. It just does not seem possible that we are this well off in North Dakota. However, on talking to a Philadelphia physician, who is a full-time instructor and medical supervisor of a hospital, I was shocked to learn that one registered nurse is responsible for 180 patients.

There is obviously considerable confusion as to what makes an R.N. Actually, R.N. is a license, not a pedigree. The nursing profession now has some 5 or 6 different types of curricula, enabling a girl to receive an R.N., and then go on to getting a master's or a Ph.D. degree. This is a problem, of course, which will take some time to solve. If one accepts the idea that nurses must go on and better their education with new techniques, nurses are going to have to specialize in certain fields, such as heart surgery, transplants of organs, and so on. However, they state that biological and technical care requires a nurse to increase her scope of "diagnosis and treatment." Nurses have always, in the past, given mostly personal care; now is added new diagnostic and therapeutic techniques which nurses must participate in. "Many decisions, judgments, and techniques cannot be delegated to the doctor alone." For many of these, nurses will need specialization. However, they go on to say that nurses may in turn have to delegate medial nursing to aides and others. The point comes up as to who decides delegation of various tasks. This is a moot question. There are certain categories of change: (1) simple tasks, that anyone can do, such as carrying a food tray, (2) those that take time to perfect ability, such as administration of intravenous fluids, and (3) complex problems that require much training and cooperation between nurse and physician. Nurses bring up the point whether a nurse is always necessary when a physician makes rounds. All of this resolves itself to the fact that problems of "attitude change" must be solved mutually between the 2 professions. The basic modification of concepts must be brought out with education. "Where attainable knowledge could have solved the issue, ignorance has the guilt of vice."

Areas in which nurses wish to develop independent judgments include (1) the well child; advice to the parents regarding diet, recreation, and so on, (2) research to see how far independent nursing can safely go, such as (a) care of the chronically ill, needing no medications, (b) convalescence and rehabilitation following a cerebral vascular accident, including emotional care, physiotherapy, and diet, and (c) care of the well patient after surgery, (3) health promotion for well people, and (4) legal implications to nurses and doctors.

Questions of economy came up. This one was brought up: Should physicians use their time doing things that nurses could do? Such things were mentioned as institutions requiring rather farfetched orders for such things as collecting urines, taking blood pressures, and attaching tubes to bedside drainage. Granted, nurses should not need orders to do things such as this; I think silly orders such as this are probably very rare exceptions rather than the rule.

There was also a discussion on ethics. One of the points brought out was that the nurses feel they should have collective bargaining regarding salary, independence, selecting representatives, and so on. I fail to see how this could be anything but unionization, and I fail to see how one can have a union and still be a profession.

There was considerable discussion concerning nurses and the problem of malpractice suits. This is the same old problem of being responsible for the acts of others. Incidentally, Memorial Hospital, New York City, has published a booklet on the pitfalls and conditions that bring up suits most often. Anyone may obtain this pamphlet. If nurses are going to have increased independence and be able to interpret lab work, etc., they are going to have to face the music on malpractice, including abandonment, negligence, mental trauma, and use of experimental drugs. All duties will have to be spelled out in new nursing practice acts.

The following are quotes from some of the talks to which I listened: "Some physicians are trying to turn the nurse into a practical doctor," by a nursing school educator. "The nurse is no longer a handmaiden of the physician limited to the Florence Nightingale type of responsibility." "Increasingly, procedures first developed by physicians may be performed quite effectively by adequately trained nurses." "The physician sees himself as the leader of the health care team, and the nurse is a helper, but, the nurse considers herself as an associate capable of judgments, independent of the physician and with a responsibility to care for the ill with or without a doctor." "Physicians are trying to turn the nurse into a practical doctor to use the nurses services to administer intravenous injections or give transfusions, dress patients' wounds after surgery, and solve the problems caused by lack of doctors by getting the registered nurse to do their jobs." "Nurses are rejecting the idea of being practical doctors; they want to be professional nurses, making their own independent judgments and giving society the benefits of their competence." "The desire and need of nurses for self-direction may not always be understood. Nurses may, in asserting their comparatively recent professional independence, minimize the profound interdependence of our professions and clutch jealously at functions or responsibilities which must be shared with co-workers." "Physicians may, in viewing developments in nursing, regard self-direction as rebellion against time-honored tradition, as these newer ideas are forms of competition for control, and, if so, do they reduce the effectiveness of our services?"

There was quite some favorable mention of the Surgeon General's report, this report being written up by his Committee on Nursing Education. The most interesting thing in this report is the fact that under 12 or 15 various headings, each subject or paragraph is summarized. The first sentence in each summary is, "Federal funds must be made available to carry out this program." Everyone should read this report.

I realize this is a very garbled, uncoordinated report on this meeting, but, as I said before, my impression of the meeting itself was that it was one of complete confusion. However, I have tried to bring out some of the points for which the nursing profession is striving. I think some of them are right and some of them totally wrong. Being the first meeting of its kind, I feel that considerable was accomplished by just bringing the various programs, problems, and differences to light in order that they may be sifted out and, at subsequent meetings, solved.

G. W. Toomey, M.D., Chairman of the Council

REPORTS OF COUNCILLORS

First District

During the last fiscal year, March 1963 through February 1964, the First District Medical Society held 8 meetings. These meetings were all held at the Oak Manor Motor Lodge in Fargo. The first meeting was held on March 26, 1963, and was called to order by the president, Dr. Frank Melton. The minutes of the preceding meeting were read and approved. The application of Dr. Richard Gross was read for the third time and he was elected to membership. The president read 2 letters from the New York State Medical Society regarding bills which had been introduced into the state legislature in New York regarding licensure of chiropractors, and these letters requested our support in endeavoring to defeat these bills. It was passed unanimously that letters of protest be sent to Governor Rockefeller and the Honorable Walter J. Mahoney, majority leader of the Senate, and the Honorable Joseph F. Carlenos, speaker of the assembly, protesting against the above legislation. Mr. Steve Pezalla of North Dakota Physicians Service talked to the medics concerning the Boeing Aircraft contract. Since there would be some employees from the Boeing Company employed in North Dakota for a period of a few years, it was proposed the Blue Shield of North Dakota process claims here locally under the Plan B fee schedule rather than have the Seattle Blue Shield process the claims. No decision was reached, since more information was required, and it was decided to wait until we could see what the Grand Forks District Society did on this present matter. In the report of the Public Health

Committee, the medics were informed of the second polio clinic which would be held on March 31, 1963, and that type III vaccine would be given. Remarks were made concerning the increase of diphtheria in Minnesota and suggested the use of new modified diphtheria and tetanus toxoid for reimmunizations. Dr. Robert Ulmer reported on the State Legislative Committee. He clarified the stand of the committee against transfer of the state hospital to the state health department. The scientific portion of the meeting consisted of a talk by Dr. Thomas Brannick of the Mayo Clinic in Rochester who spoke on "Postoperative Psychosis." The meeting adjourned at approximately 9 P.M.

The second and next meeting of the First District Medical Society was held on April 30, 1963, and the meeting was called to order by the president, Dr. Melton, at 7 P.M. The minutes of the preceding meeting were read and approved. The first reading of the application of Dr. Mark Lane was given. The application of Dr. George Haynes of Lisbon, North Dakota, for courtesy membership on the retired basis was read. It was passed unanimously that Dr. Haynes be accepted on a complimentary basis. Mr. Steve Pezalla of the North Dakota Physicians Service met before the group once more to clarify the stand of Blue Shield on the Boeing Aircraft workers of North Dakota. He specified that the Boeing Aircraft workers who earn less than $9,000 a year under the Seattle plan compare with the North Dakota Plan B of Blue Shield, and it was passed by the First District Medical Society that North Dakota Physicians Service be authorized to accept the Boeing Aircraft contract with income limits of $6,000 as is in force in North Dakota rather than $9,000. This action passed by a majority vote. In the committee reports Dr. Mack Traynor reported for the Fargo Nursing Home and Dr. W. E. G. Lancaster reported for the Medical Education Committee. He advocated our society as becoming members of the Student American Medical Association at a cost of $50 per year dues. His request was acted upon and passed by a majority vote. Reports were also heard from the Medical Review Committee, from the Medical-Legal Committee, and the Mental Health Committee. Dr. Donald Lawrence, chairman of the Public Health Committee, reported on the meetings held for the school programs and Mantoux testing and food handlers. He also reported on home nursing services, and a considerable amount of time was spent on the oral polio clinics' financial report. It was recommended that this surplus be used for a worthy cause of value and help to all in the community. It was voted that 50% of the amount of surplus funds be donated to educational TV which was about ready to start in the area and was in dire need of funds. Since this meeting was one of the quarterly business meetings, no scientific program was presented, and the meeting was adjourned at approximately 10 P.M.

The next meeting of the First District Medical Society was held on September 24, 1963, at 7 P.M. The meeting was called to order by the president, Dr. Melton, and the minutes of the preceding meeting were read and approved. The application for membership of Dr. Mark Lane was given a second reading, and the applications of Dr. James Oliver and Dr. Donald Lamb were given their first reading. Dr. Lawrence of the Public Health Committee reported for the Polio Committee and stated that the Public Health Department had instituted a program of yearly physical examinations for beverage and food handlers. Dr. Ulmer reported for the state AMPAC organization and requested additional memberships. He explained the aims and goals of the state and national organizations and gave some history of these organizations. He also announced that the Long-Darrow lectureship would be changed from the last Tuesday of the month to October 31, 1963. This was passed unanimously. Dr. A. R. Gilsdorf, president of the state medical association, talked briefly on some of the programs and plans of the state association. He was followed by Mr. Lyle Limond, executive secretary, who also talked of some of the upcoming programs of the state association. The meeting was adjourned at approximately 9 P.M.

The next meeting of the First District Medical Society was held on October 31, 1963. The meeting was designated as the annual Long-Darrow lectureship, and the business meeting was dispensed with. Dr. Melton opened the meeting and reported on a request by the police department seeking financial assistance to send a police detective to Washington, D. C., for a course on narcotics. It was voted by the society to subsidize this plan of Police Chief Anderson, and it was voted to donate $450 for expenses for such a project. Dr. Weible then delivered a eulogy in tribute to Dr. William H. Long of Fargo who died on October 1, 1963. Members of the society stood for a moment of silence in honor and tribute of Dr. William H. Long. The scientific portion of the program consisted of an excellent presentation by Dr. Hode. The topic of Dr. Hode's speech was "Recent Advances in Roentgenological Diagnosis of Biliary Disease." The meeting adjourned about 9:30 P.M.

The next meeting was held on November 26, 1963, and was called to order by the president, Dr. Melton, at 7 P.M. The minutes of the preceding 2 meetings were read and approved. The application for membership of Dr. Mark Lane was given its third reading. It was voted on and passed unanimously. The applications of Drs. Donald Lamb and James Oliver were given their second readings. Applications of Drs. Ehlen, Jordheim, Thorfinnson, and Bushell were given their first reading. A letter was read from the North Dakota State Medical Association regarding the 1964 dues which were to be the same as 1963, namely, $100 for the year for the state medical association, AMA dues $45 for the year, and the First District dues would continue the same at $20 per year. Correspondence regarding appreciation plaques was read, and the president appointed the Board of Censors as a committee to look into this and decide what should be done about appreciation plaques for members whom the society wished to honor. Dr. Gordon Magill of the Program Committee informed the members that the North Dakota Public Health Association was having a meeting on March 19 and 20 and encouraged as many members to be present as possible. He also suggested that the Heart Association speaker from the Seventh District speak to the group on February 3, which was a Monday. Since this did not fit in with the usual night specified by by-laws of the First District Medical Society, it was advised that Dr. Knapp be informed of the impossibility of getting district members together. Dr. Ulmer reported for the State Legislative Committee as was reported on mental health, career days, medical education, COMPACT, and welfare. Dr. Melton, the president, read a resolution which was presented to Mrs. William H. Long. This was attached to the minutes of the meeting. Mr. Donald Eagles, executive vice-president of North Dakota Physicians Service, reported to the medics of the First District and informed them of the recent addition of Blue Shield contracts, particularly the payment of outpatient X-ray and laboratory fees. There was a question and answer period, and Kerr-Mills legislation was discussed. The president then announced the appointment of 3 committees; No. 1, the Nominating Committee which was headed by Dr. John Magness and had on it also Dr. Macaulay, Dr. Zauner, and Dr. Paul Beithon; the Constitution Committee to consider revision and change of the constitution and by-laws—Drs. Ulmer, Zauner, Thompson, and Jaehning; and the third and last committee—Operation Hometown, Political Action—Drs. Houghton, Barnard, and Burt. The speaker of the evening was Dr. Szyrynski, who was introduced by Dr. Magill. He gave a very interesting talk on psychosomatic aspects of medicine. The meeting adjourned at approximately 9:15 P.M.

The next regular meeting of the First District Medical Society was held on December 17, 1963, and was called to order by the president, Dr. Frank Melton, at 7 P.M. The applications of Drs. Ehlen, Jordheim, Thorfinnson, and Bushell were given a second reading, and a first reading was given to the application of Dr. J. O'Hearn. Drs. Donald Lamb and James Oliver were elected to membership after the third reading of their application. It was announced by Dr. DeCesare, councillor of the district, that Dr. Darrow was given his fifty-year membership pin in the state society and is an honorary member of the First District Medical Society. Committee reports were attached. Dr. DeCesare as councillor for the First District reported on the annual interim meeting which was held in Fargo. He called to the attention of the members that the state budget had been increased and that Mr. Limond had received a 10% increase in salary and Mr. Buchanan a 5% increase. He discussed the role of medicine-religion and a state committee that would be appointed by the president. He discussed the mental health problem and a survey that was being made. He suggested that from the council came the thought that this survey should have its beginning at the local level. The state medical examiners board was discussed, and he notified the members that the council felt that the medical association would continue to submit names to the governor for his selection purposes. He briefly touched on the election of the councillor from the various district medical societies and stated that further study was being given into the matter of whether the councillor be elected or appointed. He mentioned that the council endorsed the work of COMPACT and that COMPACT had done very good work in our state and was one of the best state organizations. He notified the members that a special meeting of the House of Delegates was to be held in December 1964 in conjunction with the council meeting. He also commented that Dr. James Amos appeared before the interim council meeting and that it was his wish to set up a special immunization program. Since the state has access to all birth certificates, this would work well in assuring immunization of all children. This would be done through the local physicians. Dr. DeCesare concluded by reporting for the Public Relations Committee of the First District Medical Society of which he is chairman. The president, Dr. Melton, then called for a report from the nominating committee, and Dr. Magness, as chairman, submitted the following slate of offices. President, Dr. Warren Macauley; vice-president, Dr. Joseph Schneider. and secretary-treasurer, Dr. Marshall Landa. Board of Censors term to 1966—Dr. C. M. Hunter. The following for the House of Delegates, 7 members: delegates to the state convention—Drs. Norum, Poindexter, Burt, Kulland, Paul Beithon, Amidon, and Ulmer. Alternates—Drs. Gillam, Goltz, Zauner, Fercho, Wasemiller, Sessums, and Landa. It was moved, seconded, and unanimously passed that the secretary cast the unanimous ballot for the slate presented by the Nominating Committee. Some consideration was given to the revision of the by-laws. and this was discussed once more. Several proposed changes were suggested, such as increasing the term of the delegates for longer than one year; second, separating the office of secretary-treasurer; third, establishing a committee which rules on merits of possible malpractice cases and a committee of men who will testify on malpractice cases; and last, establishing a committee on ethics. It was suggested by Dr. Magness that any proposed changes or suggestions in the by-laws be given to a member of the By-laws Committee. This committee consists of Drs. Zauner, Thompson, Ulmer, and Jaehning. The meeting was adjourned at approximately 9 P.M.

The next regular monthly meeting of the First District Medical Society was held on January 28 1964. The meeting was called to order by the president, Dr. Warren Macaulay. The applications of Drs. Ehlen, Jordheim, Thorfinnson, and Bushell were given a third reading. Following this, all 4 were elected unanimously into membership of the society. The second reading of the application of Dr. Jerome O'Hearn was given. The first reading of the application of Drs. John McMahon and Wesley J. Palmer were also read. Dr. C. M. Hunter, chairman of the Mental Health Committee, read a letter from the North Dakota Mental Health Association inviting the members of the society to attend a showing of the film entitled, "The 91st Day." This was going to be shown in Fargo at 8 P.M. on January 30. Dr. Houghton announced that the speaker sponsored by the North Dakota Heart Association would be Dr. Miland E. Knapp. He would speak at St. Luke's Hospital on February 3 at 7:30 P.M. Committee appointments were made by the president, Dr. Macaulay, and announcements of such were mailed to all members. A list of the committee appointments for the year is attached to the minutes of the First District Medical Society. I will list only the chairmen of the committees for the year 1964. Public Health Committee: Dr. Wayne E. LeBien. Public Relations Committee: Dr. F. A. DeCesare. Community Disaster Committee: Dr. D. T. Lindsay. Mental Health Committee: Dr. C. M. Hunter. Program Committee: Dr. Mack V. Traynor. Constitution Review and Revision Committee: Dr. Robert J. Ulmer. Board of Censors: Drs. C. M. Hunter, John L. Magness, and L. G. Pray. State Legislature Committee: Dr. Robert J. Ulmer. Liaison Committee to Local Bar Association: Dr. E. P. Wenz. Liaison Committee to Local Nursing Home: Dr. A. C. Fortney. Operation Hometown: Dr. James F. Houghton. Councillor, First District Medical Society: Dr. F. A. DeCesare. Medical Review of North Dakota Physicians Service: Drs. A. C. Burt, James B. Murray, and Donald M. Barnard. The Committee on American Medical Education Foundation: Drs. W. E. G. Lancaster and John Magness. Continuing in the business meeting, Dr. Landa, the secretary, informed the members that their dues must be in by March 1 or be considered delinquent. Drs. Burt, Houghton, and Norum were unanimously reelected to the Board of Directors of North Dakota Physicians Service. Their terms will expire in 1966. Dr. Gillam announced that the speaker sponsored by the American Cancer Society would be Dr. Arnold Kreman. The exact date and place of the meeting would be announced later by Dr. Gillam. Dr. LeBien announced on behalf of the March of Dimes Society that about $2,000 were available for the care of patients with birth defects who were not eligible for other monies. Dr. Houghton spoke on Operation Hometown. He discussed the operation very completely and how it would oppose King-Anderson type of legislation. He notified the members of the committee of the various divisions and subdivisions of Operation Hometown and the printed material available for distribution and how this could be used very effectively. An interesting facet to the discussion arose when Dr. Houghton wished to know whether the First District Medical Society was or was not in favor of this program. There has been considerable rumbling that many of the physicians do not approve. Motion was made and passed that a secret ballot be taken and, upon doing so, of approximately 75 voting members present there were 6 no votes. Following this a discussion took place regarding means of disseminating information to the community; also discussed was the need for approximately $800 to $1,000 per year to implement this program. Since there was no money in the treasury that would come anywhere near the amount needed, it was voted that the members of the First District Medical Society be assessed an additional $10 to defray the cost of the program Operation Hometown in the First District. Then, for the program that evening, Dr. Gordon Magill, program chairman, introduced the debating teams from Fargo High School and the West Fargo High School. Betty Malen and Karl Hella represented Fargo High and David Leon and Mark Ohnstad represented West Fargo High. The subject debated was "Social Security Should be Extended to Provide Complete Medical Care for the Aged." The debate was presented in an outstanding manner and was very informative. The meeting adjourned at approximately 10:10 P.M.

The last meeting of the fiscal year was held on February 25, 1964, and was called to order by the president, Dr. Macaulay, at 7 P.M. Dr. Jerome O'Hearn was unanimously elected to membership following the third reading of his application. The second reading of the application of Drs. John McMahon and Wesley J. Palmer were given and the first reading of Dr. Robert C. Gaebe. Dr. James Houghton reported on Operation Hometown. He called to the attention of the members the lag in paying of the $10 assessment. Dr. Wayne LeBien, chairman of the Public Health Committee, asked that suggestions be submitted regarding the expenditure of the surplus funds obtained from the polio campaign. Dr. DeCesare reported on behalf of the Public Relations Committee. He called to the attention of the members that the National Plowing Contest would be held in September about 35 miles west of Fargo. Approximately 200,000 people would attend this three-day affair. He recommended that a mobile first-aid station with an ambulance standby should be set up for these three days from 8 A.M. to 6 P.M. and that the funds for this project could be obtained from the state Public Relations Committee and also from the Public Information and Education Committee of the North Dakota Physicians Service, that the only expense involved to the First District Medical Society would not be monetary but would be professional. Doctors would have to be supplied and also nurses. Members of this district comparing this with the first-aid station which is stationed at the state capitol during the meeting of the legislature thought it was a very commendable project and passed this unanimously. Dr. Thorfinnson requested information regarding the Kerr-Mills bill, especially with regard to whether it was working satisfactorily. He suggested that the secretary write Mr. Limond and request that he contact physicians throughout the state to determine if there are any complaints regarding the Kerr-Mills bill from patients or from physicians. It was further suggested by Dr. Beithon that Mr. Limond inform the doctors of the State regarding requirements concerning Kerr-Mills aid. The motion was passed unanimously. Mr. Donald Posey, detective of the Fargo Police Department then reported to the First District medics about the one-week course he attended on narcotics in Washington, D.C. It was a very interesting presentation. The meeting was adjourned at approximately 8:30 P.M.

F. A. DeCesare, M.D., Councillor

Second District

The Second District had meetings every month of the year, either regular or special, except July and August.

A regular meeting was held May 16, 1963, at Andrew's Steak House in Rugby, North Dakota. The Devils Lake District Medical Society inaugurated a meeting to be held each year immediately after the meeting of the state association. It was felt the delegates could give a better report and the members could be brought up to date on all matters before they had cooled off or had been forgotten. I have felt it would be a good move if every district would hold a similar meeting. They would be rewarded by a much better report from their delegates. The meeting was called to order by the president, Dr. McIntyre. Thence the reports of the delegates were entertained. I wish to say at this time that we had the best report I can ever remember from any delegate at any time since I have been in the society. Drs. Hilts and Seibel are to be complimented. Considerable discussion ensued concerning house calls and office calls as concerns Blue Shield. It was felt that the problem be left to the judgment of the representatives of our district society on the Blue Shield Board of Directors. There was considerable dissenting discussion that AMPAC and COMPACT were not being truly bi-partisan. The Indian medical care situation was also discussed; however, this poses no problem in our locality. The members of the district were disappointed that their resolution regarding a committee to evaluate voluntary health insurance programs was tabled in committee at the state meeting. Considerable discussion ensued concerning crippled children and welfare, inasmuch as the members of this society feel that the physician should have the right to pick the specialist he desires when referring such patients.

A very confusing statement as to why the legislature did not support the changes in our Kerr-Mills legislation was read.

Dr. Toomey presented the councillor's report.

Considerable discussion ensued concerning the District Health Unit pay of nurses, as compared with what nurses receive throughout the state. No action was taken.

Dr. William Tuikula of Devils Lake was approved as a member in good standing of our society.

Dr. Mahoney, our Ramsey County senator, reported on the phases that were pertinent to medicine at the last legislature. He stated unequivocally that he has come out on many occasions against the King-Anderson bill. He also discussed the Jamestown State Hospital transfer bill and the amendment that was tied to it. In regard to the amendment, it stated that the state hospital was to be under the Board of Administration and also a board of medical supervisors was to be appointed, of which a doctor, the head of the Public Health Department, would be on the board along with 3 other M.D.s—all serving in an advisory capacity. It seemed that in this particular amendment, physicians would have the duty to pass upon "colors of rooms" and other factors which were all tied into a rather encompassing statement, and, because of this particular all-inconclusive angle, it was defeated.

It was agreed that we pay the meals of the attending students from the university that were out on clerkships in our district area.

There being no further business, the meeting was adjourned.

On September 12, 1963, the Devils Lake District Medical Society met at Andrew's Steak House, Rugby, North Dakota.

Dr. Gerd Fischer of the Quain and Ramstad Clinic, Bismarck, gave an interesting and informative talk on "Accidental Head Injuries."

Applications were approved and accepted of Dr. Ernest V. Gilbertson of Devils Lake, Dr. Jerry D. Wolf of Bottineau, and Dr. Jackson W. Lind of Bottineau.

Dr. Mahoney presented the society with a check for $693.15 which was collected from the oral polio drive which had been conducted in Ramsey County in the early months of 1963.

The society took this opportunity of paying tribute to Dr. Ted Keller of Rugby, who is leaving our community. We will all feel his loss.

A letter was read from Mr. Neil Thompson, Ramsey County state's attorney, covering the actions of Mr. Gleford Stenerson, a "hothand" in rural Devils Lake. Mr. Thompson had asked what the medical society thought should be done about this. Dr. Toomey pointed out that any complaints of a person engaging in an unauthorized practice of medicine should be referred to the Board of Medical Examiners.

Dr. C. G. Johnson asked the society what was being done generally about measles vaccine, especially concerning the charge for the injections.

Dr. Cuadrado drew our attention to the recent TB legislation, pointing out that this legislation provides treatment for active or suspended TB, free of cost to the patient. One strong point made by Dr. Cuadrado was that the patient being sent to him should be Mantoux-positive.

On October 3, 1963, the Devils Lake District Medical Society met at The Ranch, Devils Lake, North Dakota. The speaker for the evening was Dr. Donald Lamb of Fargo, plastic surgeon, who presented a very interesting program on "Treatment of Common Skin Disorders with Plastic Surgery." An informative discussion followed the presentation. Dr. McIntyre appointed a special committee to oversee the handling of funds that the district society had received from the polio clinics.

A brief report was given regarding Major Medical being available through Blue Cross and Blue Shield.

The meeting was duly closed.

On November 7, 1963, the Devils Lake District Medical Society met at The Ranch, Devils Lake, North Dakota. The speaker for the evening was the president of the North Dakota State Medical Association, Dr. Amos Gilsdorf. His speech covered many facets of the political problems that we face and was received with great enthusiasm by the membership. Also present was Dr. Henderson of Bismarck, newly appointed medical consultant to the welfare board, who gave excellent advice to the members insofar as processing certain forms. The request for an audience with our society from Agnes King of the welfare bureau was disposed of by appointing 2 members from each county in the district to meet with Miss King.

"Operation Hometown" was discussed, and the membership was advised that the secretary had speeches available for those who wished to appear before groups. Enthusiasm is not what it should be.

A new potential member of the society, practicing in our district, was introduced, namely, Dr. James Bishop of Cando.

The secretary made mention of the fact that COMPACT and AMPAC were soliciting support for their medical-philosophical endeavors. A most heated discussion followed.

December 5, 1963, the Devils Lake District Medical Society convened at The Ranch, Devils Lake. The speaker of the evening was Dr. George M. Christensen of the Minot Veterinary Clinic who gave a most interesting program.

Dr. James Bishop of Cando was admitted to the society.

Election of officers ensued with the following results:

President—Dr. John Sawchuk, Rolette
Vice-president—Dr. C. Robert Miller, Bottineau
Secretary-Treasurer—Dr. Louis Pine, Devils Lake
Two-year censor—Dr. E. J. Schwinghamer, New Rockford
Three-year censor—Dr. James Bishop, Cando.

The delegates and alternate delegates were all reelected and are as follows:

Delegates—Dr. H. H. Hilts, Cando, and Dr. G. W. Seibel, New Rockford
Alternates—Dr. Chris Johnson, Rugby, and Dr. R. D. McBane, Devils Lake.

January 9, 1964, the Devils Lake District Medical Society met at The Ranch, Devils Lake, North Dakota. The speaker of the evening was Dr. John Gillam of Fargo. His topics were "Carcinoma of the Cervix in a Community Hospital," and "Single Umbilical Artery." He gave a very interesting presentation.

As usual, King-Anderson was discussed and everyone urged to wire his congressman regarding same.

Dr. Kihle was elected as new director of the North Dakota Physicians Service.

Corporation members for the North Dakota Physicians Service were elected as follows: Drs. Kenneth Kihle, L. F. Pine, Glenn Seibel, George Hilts, C. G. Johnson, Jon Eylands, and A. R. Neuenschwander.

Dr. Toomey gave a report of the interim meeting of the council held in December.

Salient points of the council meeting were brought up and discussed. He also informed the society that there would be a special meeting of the House of Delegates late in the fall of 1964 because of the legislative session starting in January 1965. Among other things, he discussed the fact that it is necessary that dues be paid by March 1 in order to seat our delegates.

The resolution passed by this society and sent to the house in May regarding amending the constitution to elect the councillors locally was brought up and motion made and passed that the resolution by us be rescinded. Notification of such action was sent to Mr. Lyle Limond.

It was noted at this meeting that our society now has 38 members, which entitles us to one more delegate. In view of this, Dr. C. G. Johnson, Rugby, was elected as our third delegate. Alternate delegates were Drs. L. T. Longmire and A. R. Neuenschwander to fulfill the other two vacancies.

February 13, 1964, the Devils Lake District Medical Society met at The Ranch, Devils Lake. Speaker of the evening was Dr. Mereck of Duluth, ENT specialist who gave an entertaining visual and oral discussion on "Laryngeal Tumors." This meeting was sponsored by Merck, Sharp & Dohme.

Dr. Hillman's application was read and approved by the society for membership (Dr. R. S. Hillman, Rugby).

Dr. E. V. Gilbertson gave a report of the Financial Committee in regard to the funds, recommending that (1) $1,000 be donated to the University of North Dakota for a medical scholarship (since federal funds could be obtained to the amount of $9,000, according to HR-12), thus providing a $10,000 scholarship, (2) that $100 annually be given to the schools of nursing in Devils Lake and Bottineau, and (3) that the balance of the fund be put into a savings account. It was moved, seconded, and carried that such recommendations be carried out.

March 5, 1964, the Devils Lake District Medical Society met at The Ranch, Devils Lake, North Dakota. The speaker of the evening was Dr. Ross Willows, head of the obstetrics department, St. Boniface Hospital, Winnipeg. He discussed "Hypertension in Pregnancy." Considerable discussion followed his presentation.

Letters of appreciation from St. Andrew's Hospital School of Nursing and the University of North Dakota were read regarding the scholarships we had made available to them.

All in all, it has been a very interesting and active year as far as the Second District is concerned. There have been many discussions, some of them heated, but we have been able to resolve our problems quite well. Numerous new members have come in and have joined the society as soon as they have established their practice.

G. W. Toomey, M.D., Councillor
Second District

Third District

The Third District Medical Society held 9 regular monthly meetings during the year with one special meeting for the purpose of formulizing and familiarization with "Operation Hometown."

The April 1963 meeting consisted of a scientific paper "The Management of Tumors in Children," by Hugh Lynn, M.D., F.A.C.S., of the Mayo Clinic, followed by discussion. The business meeting was given over to the officers of the North Dakota Physicians Service as presented by Marlin Johnson, M.D., president of the Board of Directors; Donald Eagles, executive vice-president; and W. B. Huntley, M.D., chairman of the Rates and Underwriting Committee. It was moved and seconded and carried by the society of unequivocal and vehement opposition to the addition of a major medical rider to the Blue Shield contract. A Glaucoma Clinic to be held in Grand Forks was approved. The award of $50 by this society was acknowledged by the winners of the Northeastern North Dakota District Science Fair—namely, Miss Leta Tringen and Mr. Alan Lukes of Hoople, North Dakota and Park River, respectively. William Nelson, M.D., was duly nominated and elected to the Board of Directors of the North Dakota Physicians Service. Fourteen members to the North Dakota Physicians Service were then appointed by the president, John Graham, M.D. A resolution was presented from the Devils Lake District by Ralph E. Mahowald, M.D., to the effect that councillors will be elected by their own society instead of by appointment. This resolution was approved by the society.

The May meeting was held May 16. Thomas Schafer, M.D., reported the completion of providing types I, II, and III of the Sabin oral vaccine to the community and thanked the society for its excellent cooperation with the committee for the outstanding success of this venture. A full discussion of the proceedings of the North Dakota State Meeting was then presented by the delegates, Robert Painter, M.D., Richard Leigh, M.D., and John Sandmeyer, M.D., and discussed with the group. A report was presented by the members of the Board of Directors and corporation members of the North Dakota Physicians Service, followed by discussion.

A special meeting was held June 25 with members of the Traill-Steele District Society in attendance. The first order of business was approval and acceptance of membership of G. A. Skelly, M.D., McVille, North Dakota. "Operation Hometown" was then launched and explained by Mr. Charles Johnson of the AMA and Daniel Buchanan of the North Dakota State Medical Association. William T. Powers, M.D., was nominated as the general chairman and accepted with a great deal of enthusiasm and was duly elected.

The September meeting was held at Grafton, North Dakota with "Radio Isotopes" by John W. Magness, M.D., of the Dakota Clinic, Fargo, being the paper discussed. William T. Powers, M.D., then presented a report on "Operation Hometown," how it was being organized, and discussion encouraged. Dale Kana, M.D. of Grafton agreed to the chairmanship outside of Grand Forks County.

The October meeting consisted of the approval of the membership of W. A. Pinsonnault, M.D., of Drayton, North Dakota, on transfer from Minnesota, and of Daniel H. Johnson, M.D., of Cavalier, North Dakota. An honorary certificate and a fifty-year pin for fifty years of medicine were presented to J. F. McKay, M.D., of Grand Forks by Councillor Ralph E. Mahowald, M.D., from the North Dakota State Medical Association. Dr. Edward R. Rynearson then presented "What Price Hormones" as a scientific paper; this paper created a great deal of discussion and was both very humorous and very informative.

The November meeting consisted of a detailed treasurer's report, audited and accepted unanimously. A request from the Academy of Physical Medicine and Rehabilitation requesting the approval of Blue Cross—Blue Shield coverage was tabled by this society. The president of the North Dakota State Medical Association, Amos R. Gilsdorf, M.D., of Dickinson, was the guest of honor; he presented a review of the year's activities and urged interest and activity of all of the members in the district and state medical society and in its offices. Wm. T. Powers, M.D., requested $500 be designated for "Operation Hometown." Keith Vandergon, M..D., moved that $1000 be allocated for the purposes of "Operation Hometown." This was seconded by John Lambie, M.D., and carried unanimously by the society.

The December meeting was given over to a discussion by Dean T. H. Harwood of the present status of the blood bank at the university and his plan to recommend discontinuance to the Medical Advisory Council. Gerald J. Obert, M.D., discussed the advisability of the Southwest Blood Bank usage and requested the society approval for this district; this was granted and carried. A nominating committee consisting of Ralph E. Mahowald, M.D., chairman, Ralph E. Leigh, M.D., and Frank A. Hill, M.D., was appointed by the chairman and requested to present a slate of officers at the January meeting. A scientific discussion of "Temporal Bone Banking and Research Concerning Deafness" was presented by Nelson A. Youngs, M.D.

The January 1964 meeting commenced with a social hour and a dinner. A paper on "Radiologic Aspects of Endometriosis of the Colon" was presented by Robert J. Olson, M.D., Williston, North Dakota. "Operation Hometown" was discussed by Chairman Dr. Wm. T. Powers and Dr. Richard K. Helm as to distribution of pamphlets and letter writing.

Election of officers was as follows:

President—Frank A. Hill, M.D., Grand Forks
President-elect—Kenneth Helenbolt, M.D., Grand Forks

Vice-president—George L. Countryman, M.D., Grafton

Secretary-treasurer—Carl E. Lorentson, M.D., Grand Forks

Censor—Ernest L. Grinnell, M.D., Grand Forks

Delegates—
- R. C. Painter, M.D., Grand Forks
- George L. Countryman, M.D., Grafton
- John A. Sandmeyer, M.D., Grand Forks
- Robert DeLano, M.D., Northwood
- Richard H. Leigh, M.D., Grand Forks
- Kenneth S. Helenbolt, M.D., Grand Forks

Alternates—
- Wm. T. Powers, M.D., Grand Forks
- Wallace Nelson, M.D., Grand Forks
- Wm. P. Teevens, M.D., Grafton
- Harold W. Evans, M.D., Grand Forks
- Ben J. Clayburgh, M.D., Grand Forks

Corporation and board members to the Blue Shield were elected and duly noted in the records.

At the February 1964 meeting, wives were guests of the society for dinner and a program of debate by Central High School students—"Should Medical Care Become an Extension of the Social Security Program?" This was well received and caused considerable comment and informal discussion.

The meeting closed with a discussion of "Operation Hometown" and the letter writing as projected to lawyers, dentists, Republicans, Democrats and so on, soliciting support.

Attendance at practically all of the meetings this past year has been at an all-time high, and interest in this society has been improving. The members have worked well together on presented projects, and it is anticipated activity will remain at a high level.

Ralph E. Mahowald, M.D.
Councillor, Third District

Fourth District

The Northwest District Medical Society had a successful season (June 1963 to April 1964). As of April 1, 1964, the society had 62 regular members and 5 honorary members.

During 1963, Dr. Thomas F. Gibson and his wife, Dr. Shellagh Milligan, who practiced in Mohall, moved to Mandan, North Dakota.

The following physicians were accepted into membership in the Northwest District Medical Society during 1963-64: Dr. J. L. Fumerton, Dr. J. A. Barnes, Dr. B. A. Huss, Dr. Berchmans Rioux, and Dr. R. A. Odegard, all of Minot. Dr. Douglas Pye opened his practice in Mohall, North Dakota, during the past year.

Officers of the society during 1963 were Dr. Richard S. Larson, Velva, president; Dr. Ekrem Gozum, Minot, vice-president; and Dr. A. Malcolm Cameron, Minot, secretary-treasurer. New officers were elected early in 1964: Dr. Gale R. Richardson, president; Dr. George M. Hart, vice-president; and Dr. Brian E. Briggs, secretary-treasurer, all of Minot. Dr. L. Henry Kermott continues to serve faithfully as program chairman.

A summary of the society's programs during the past year follows:

On April 25, 1963, Mr. William Guy, administrative secretary of the North Dakota Blue Cross, addressed the society at the Minot Country Club concerning the operation and some of the problems of the North Dakota Blue Cross. A most interesting discussion followed, which lasted far into the night.

On June 27, 1963, Mr. Daniel Buchanan, public relations consultant of the North Dakota State Medical Society, spoke on the topic, "Operation Hometown" and how each local society and member can work most effectively to counter the proponents of the King-Anderson bill. An interesting discussion ensued, which lasted far into the night.

On July 18, 1963, a social meeting was held with members of the society's auxiliary in a joint meeting at the Minot Country Club. The weather was delightful, and a splendid time was had by all. An interesting discussion ensued, which lasted far into the night.

On September 26, 1963, a Minot veterinarian, Dr. George Christianson, spoke to the society concerning veterinary medicine and animal diseases and their relationship to human diseases and medical practice. An interesting discussion ensued, which lasted far into the night.

On October 24, 1963, the society was favored by the presence of the president of the North Dakota State Medical Society, Dr. A. R. Gilsdorf, of Dickinson, who discussed the functions of the American Medical Association, the state association, and the local society—together with the obligations of individual doctors to their respective communities. At this meeting, certificates commemorating fifty years of medical service in the state of North Dakota were presented to Drs. D. W. Matthaei, Fessenden; Dr. G. Roy Ringo, Minot; and Dr. A. E. Westervelt, Bowdon. An interesting discussion ensued, which lasted far into the night.

On December 12, 1963, a joint meeting of the society and its auxiliary was held at the Minot Country Club. An interesting program followed the dinner, consisting of a demonstration debate by members of the Minot High School Debating Society on the subject, "Medicare." An interesting discussion ensued, which lasted far into the night.

On February 5, 1964, the program of the Northwest District Medical Society was furnished by the North Dakota Heart Association. The speaker was Dr. Robert S. Elliot of the staff of the University of Minnesota Medical School, and his subject was "Surgery and Valvular Heart Disease." An interesting discussion ensued, which lasted far into the night.

On March 4, 1964, the program for the society was provided by the local unit of the American Cancer Society. The speaker was Dr. Arnold Kremen, professor of surgery at the University of Minnesota. His subject was "Cancer of the Head and Neck." An interesting discussion ensued, which lasted far into the night.

It should be noted that in contrast to some previous years, approximately 95% of the society's members had paid their annual dues before April 1, 1964. It is anticipated that an even better record may be achieved in 1965.

Frank D. Naegeli, M. D.
Councillor, Fourth District

Fifth District

The Sheyenne Valley Medical Society held 8 dinner meetings during the fiscal year March 1963 through February 1964. The first meeting was held March 20, 1963, at which time Dr. Ernest Schmidhofer, at that time superintendent of the state hospital at Jamestown, North Dakota, discussed his views on the management and makeup of the state hospital.

April 17, 1963, our program was provided by Dr. Frank Melton, dermatologist, and Dr. J. V. Sessums, pediatrician, of the Dakota Clinic of Fargo, North Dakota. Dr. Melton spoke on "Seasonal Allergies" and Dr. Sessums on "Pediatric Allergies."

The next meeting was held May 22, 1963, with another scientific program. Dr. Robert Ivers, neurologist of Fargo, North Dakota, discussed the function of and changes in the spinal fluid and pressure changes.

No summer meetings were held.

The first fall meeting was held October 16, 1963. Mr. Ed Sypnieski of the North Dakota State Tuberculosis Association presented the program. He discussed the association's program for testing for new cases and positive tuberculin reactors. He also mentioned the development of the association's interest in other respiratory diseases.

November 20, 1963, we had as our guest and speaker, Dr. Amos Gilsdorf, president of the North Dakota State Medical Association. He was accompanied by Mr. Dan Buchanan, public relations officer for the state association. Dr. Gillsdorf discussed association problems and aims.

Another meeting was held December 11, 1963, at which our program constituted a "Symposium on Renal Disease" conducted by the Academy of General Practice and members of the Dakota Medical Foundation of Fargo, North Dakota. The members of the society were saddened by the death of Dr. J. P. Merrett on December 2, 1963. A memorial in his memory was sent from the society to A.M.E.F.

At the meeting on January 14, 1964, election of officers for the ensuing year was as follows:

President	C. E. JENSEN, M.D.
Vice-president	C. J. KLEIN, M.D.
Secretary-treasurer	J. W. GOVEN, M.D.
Delegate	C. J. KLEIN, M.D.
Alternate	W. R. JENSEN, M.D.

Dr. Donald Lamb, plastic surgeon of Fargo, North Dakota, spoke on "New and Practical Aspects of Plastic Surgery and Skin Grafts."

The guest speaker February 4, 1964, was Dr. Miland Knapp of the Sister Kenny Institute of Minneapolis, Minnesota. His topic was "The Rehabilitation of the Stroke Patient." We also had as our guest Mr. William Johnson of the North Dakota State Heart Association. It was decided at this meeting to accept the immunization schedule as outlined by the American Academy of Pediatrics. It was also voted not to conduct an adult immunization clinic as requested by the city health nurse.

With the addition of Milton O. Berg, M.D., and Eugene Carpenter, M.D., the Fifth District now has a total active membership of 9 with 1 retired. Dr. A. C. Macdonald now becomes a fifty-year member of the state association.

C. Christianson, M.D.,
Councillor, Fifth District

Sixth District

During the interim since the last report to the state medical association, the following meetings were held by the Sixth District Medical Society.

On April 5, 1963, a meeting was held in conjunction with the State Bar Association. Mr. William J. McAulille, Jr., director of the Department of Medical Ethics of the American Medical Association, spoke on "Consent—From the Cradle to the Grave." Dr. Lee A. Christolerson of the Neuro-Psychiatric Institute at Fargo, spoke on "Pain, Its Mechanism and Clinical Evaluation for Medical-Legal Purposes." Dr. Roland Fleck, Ashley, North Dakota, was voted into membership.

On October 15, 1963, Dr. Malcolm McCannel, ophthalmologist, Medical Arts Building, Minneapolis, Minnesota, who had been on Project Hope on a tour in the Far East, especially in Indonesia, spoke. He also presented a film revealing the story of the medical problems in Indonesia. Dr. G. E. Tolstedt and Dr. R. E. Tarnasky, Bismarck, were voted into the society. Announcement was made that fifty-year pins had been given to Dr. Agnes Stucke, Dr. J. W. Moreland, and Dr. F. C. Lorenzen. Dr. Ralph Dunnigan was appointed to the Public Relations Committee.

The next meeting was held on November 12, 1963. Dr. G. E. Tolstedt spoke on "Tumors of the Mouth." He presented slides and case studies of various tumors of the mouth and neck in cases under his care in the Veterans Administration Hospitals in Seattle, Washington. Donald Eagles of Fargo spoke on "New and Old Policies of North Dakota Blue Shield."

The next meeting was held on December 10, 1963. Dr. Amos Gilsdorf, president of the North Dakota State Medical Association, was a guest. He spoke to the group on "Operation Hometown," and stressed the importance of committee work and urged all doctors to take an active part in politics and present a united front. Mr. Lyle Limond, executive secretary of the North Dakota State Medical Association, also stressed our interest in "Operation Hometown" and encouraged all to be actively interested in our state association, as well as the AMA. Dr. Pierson, who was leaving soon for the mission field in Ethiopia, was given a rising vote of thanks for his work in the society as secretary-treasurer. Dr. P. Ramos and Dr. H. Arnold, Bismarck, were voted into the society. The following officers were elected for the coming year:

President	O. V. LINDELOW, M.D.
Vice-president	RALPH VINIE, M.D.
Secretary-treasurer	J. B. FRANKEL, M.D.
Board of censors (Term ending 1966)	E. D. PERRIN, M.D.
House of delegates (Term ending 1966)	C. J. BAUMGARTNER, M.D.
House of delegates (Term ending 1966)	E. G. VINJE, M.D.
House of delegates, alternate (Term ending 1966)	E. D. PERRIN, M.D.
House of delegates, alternate (Term ending 1966)	RALPH DUNNIGAN, M.D.
Board of directors (North Dakota Physicians Service)	E. H. BOERTH, M.D.

At the January 28, 1964, meeting the program consisted of a debate by 2 members of the debate team from the Bismarck Senior High School and 2 members from the debate team of St. Mary's Central High School on the topic, "Resolved: Social Security Benefits Should Be Extended To Include Complete Medical Care." Dr. Dunnigan reported on "Operation Hometown" and urged all members to write to their representatives and senators in Congress regarding their feelings on the problem of medical care for the aged. It was decided to send a letter of thanks to Representative Don Short for his testimony and statements before the House Ways and Means Committee regarding the state association's position on social security medical care for the aged. Dr. A Kalnins, Washburn, was reelected to the Board of Directors of the North Dakota Physicians Service.

At our next meeting on March 5, 1964, Dr. Arnold Kremen, Minneapolis, Minnesota, spoke on "Head and Neck Cancers." Dr. Ralph Dunnigan discussed our encouraging nonmedical friends and acquaintances to put forth efforts to combat King-Anderson type of legislation in Congress. Dr. Marlin Johnson reported on a meeting of the Blue Shield Board of Directors. In accordance with a constitutional provision that alternate delegates to the House of Delegates be appointed for only one-year terms, the terms of Dr. Ralph Dunnigan and Dr. E. D. Perrin, as alternate delegates, were changed from three years to one year. Dr. A. Zukowsky of Steele was elected to the Corporate Board of North Dakota Physicians Service, for the year 1964, and the remaining members of the corporation from this district were reappointed. Dr. Ardis J. Candy and Dr. Wm. Null were elected to membership in the society.

Membership in the district is as follows: active members, 81; honorary members, 5; complimentary members, 1; retired members, 1; and limited basis, 1. We gained 6 new members. We were fortunate that none of our members passed away during this year. One member transferred to the Southwestern District Medical Society.

C. H. Peters, M.D.,
Councillor, Sixth District

Seventh District

The Seventh District Medical Society has had 9 dinner meetings since last reporting. Attendance has been universally good. A reporting follows:

April 25, 27 members and guests were in attendance. A review of our Papanicolaou Cancer Clinic was made with 500 pap smears having been done. An antismoking resolution was formulated for the state meeting. An oral polio clinic was organized and 2 scientific films were shown on "Diabetes in Children," and "Essentials of Neurologic Exam."

May 23, 29 members and guests were in attendance. A report of the delegates and the councillor on the state meeting at Dickinson and a report of our Blue Shield representative were given. Again, 2 scientific films on "Gastric Freezing of Duodenal Ulcer" and the "Effects of Estrogen and Atherosclerosis" were shown.

June 26, 17 members and 14 guests were present, including Charles Johnson of the AMA staff and Dan Buchanan of the state office, in attendance to familiarize ourselves with "Operation Hometown." A review of our oral polio clinics was reported with 17,000 having participated.

July 11, a dinner meeting was held with 20 regular members and their wives and 15 guests, including representatives from the dental, clergy, insurance, pharmaceutical, hospital, and bar association, for an "Operation Hometown" organizational and informational meeting. At this meeting Dr. E. J. Larson was chosen chairman.

Our next meeting was October 24 after our usual summer hiatus, and 21 members and 7 guests were in attendance. The program was presented by Dr. Lloyd Ralston of Bismarck and Dr. Edwin Olmstead of Grand Forks, discussing "The Medical Aspects of Esophageal Hiatal Hernia."

Our next meeting was January 16, 1964, with 29 in attendance. At this, our annual meeting, officers were elected. We raised our district society dues $5 and made $600 available for "Operation Hometown." At this meeting Dr. A. R. Gilsdorf made his presidential visitation. Don Eagles spoke on Blue Shield programming, Dan Buchanan spoke on public relations and "Operation Hometown," and Lyle Limond spoke on state society problems. At this meeting, 4 physicians were welcomed into our society.

Our next meeting was February 5 with 24 in attendance. This was our annual heart meeting with Dr. Miland Knapp speaking on "Stroke Rehabilitation."

On February 27 there were 30 members and guests present. The program was presented by Dr. Amos of the state public health department and Dr. Myron Burger, psychologist, who spoke to our society at length about the State Mental Health Survey.

The next meeting was March 6, with 30 in attendance, including local dentists. This program was presented by the Cancer Society with Dr. John Gillam of Fargo introducing Dr. Arnold Kremen of Minneapolis who spoke on "Cancer of the Head and Neck."

The meetings this year have been more numerous and, I feel, of better quality with reporting of state matters by those informed more regularly, participation in oral polio and tetanus immunizations, "Operation Hometown," and medical identification high on the list.

Officers for 1964:

President	
D. M. CLEMENT, M.D.	Jamestown
Vice-president	
EUGENE F. BOLLIGER, M.D.	Kulm
Secretary-treasurer	
R. D. NIERLING, M.D.	Jamestown
Delegates	
J. N. ELSWORTH, M.D.	Jamestown
JOHN VAN DER LINDE, M.D.	Jamestown
Alternates	
D. M. CLEMENT, M.D.	Jamestown
J. V. MILES, M.D.	Jamestown
Censors	
R. W. WOODWARD, M.D.	Jamestown
JOHN JESTADT, M.D.	Jamestown
ROBERT NOLAN, M.D.	Jamestown

Elected to the North Dakota Physicians' Service Corporation for the year were Drs. Elsworth, Van der Linde, Sorkness, Clement, Hieb, Jestadt, and Swenson.

There are 38 active members in the society. New members admitted during the year were Drs. Garner Brasseur, Roger Engberg, Ted Harris, and Hugh Carbone. During the year, our society lost Dr. Ernst Schmidhofer.

T. E. Pederson, M.D.,
Councillor, Seventh District

Eighth District

The year of 1963 opened with the election of C. R. Petty, M.D., president; G. E. Ellis, M.D., vice-president; and R. E. Wiederanders, secretary-treasurer.

On February 7 a joint dinner meeting was held with the Ladies Auxiliary. Dr. Miland Knapp, head of the Department of Physical Medicine, Sister Kenny Foundation, presented the program. No other formal meetings were held during the year; however, many matters of business were carried out in short sessions following hospital staff meetings.

The Kotana Society sponsored and administered a very successful program of vaccination with Sabin oral polio vaccine, administering vaccine in 4 key cities across the district, and much interest has been shown in economic and political areas throughout the year.

Members transferring out of the district were Drs. Milton Berg, Charles Petty, and C. H. Walker. Members joining the society are M. J. Olson, M.D.; R. J. Olson, M.D.; C. H. Jun, M.D.; Eoin Harvey, M.D.; and J. I. Gonzales, M.D.

The increased tempo of activity to this date in 1964 promises a very successful season.

Dean R. Strinden, M.D.,
Councillor, Eighth District

Ninth District

The Ninth District Medical Society had a total of 5 meetings within the past year, the first of these being our annual visit to Mott and the guests of Dr. Robert Hankins and his new associate, Dr. Delbert Hlavinka. This meeting was mostly concerned with the rehash on our just recently completed convention in Dickinson and a report to the membership of the proceedings of the council and the House of Delegates during the recently completed convention. The only other business of interest discussed was the establishment of a medical museum in Medora as part of the restoration program being instituted by Mr. Harold Schafer. "Operation Hometown" also was launched at this meeting for the coming year.

Our next meeting was in October at the Ray Hotel in Dickinson, and we again dealt with further facts in the implementation of "Operation Hometown."

In January 1964 the annual business meeting was held with discussion of a new constitution for the district society and the election of officers for the following year. Those elected were: president—Dr. Andrew Sawchuk; vice-president—Dr. H. L. Reichert; secretary-treasurer—Dr. Richard Raasch; corporation members—Drs. Ralph Dukart, Robert Hankins, K. G. Foster, A. R. Gilsdorf, and W. C. Hanewald; delegates—Drs. W. C. Hanewald and Robert Hankins; alternates—Drs. R. F. Gilliland and N. B. Ordahl; and councillors—Drs. A. J. Gumper, D. J. Reichert, and R. C. Thom. This slate was, as usual, elected unanimously.

In February a scientific program was held in Dickinson with the presentation of Dr. Miland E. Knapp from the Kenny Rehabilitation Institute in Minneapolis. He was accompanied and introduced to our society by Mr. Bill Johnson of the North Dakota Heart Association.

In March 1964 Dr. Arnold Kremen of Minneapolis presented the subject of "Carcinoma of the Neck and Mouth." He was presented to the society by Dr. John Gillam as a representative of the American Cancer Society. Mr. Lyle Limond was also introduced to the society, and it was his suggestion that the members of the association become part of other organizations in the state so that they might have some guidance from a medically oriented group. We also had our second annual meeting with the Bar Association in joint attendance, and there was an interesting presentation by members of both of our societies in regard to medical-legal problems. It is anticipated that we will continue to have meetings with this group to further good fellowship and continue to iron out differences that might arise between our 2 professions.

Keith G. Foster, M.D.,
Councillor, Ninth District

Tenth District

The Tenth District Medical Society held 4 regular meetings in 1963. These were dinner meetings followed by business meetings and scientific sessions.

Our members have been active in faithfully attending the various committee meetings of which they are members and in carrying out the recommendations of the state association. Some members of our group have been very active in giving talks to civic, P.T.A., and homemakers groups on subjects which help our rapport with the general public and to discourage socialization of medicine and to inform the public on our cooperation in the fields of mental health and preventive medicine. Several immunization clinics have been held in cooperation with public health nurses.

In 1963 we had 2 transfers—Dr. George A. Skelly and Dr. Russell Odegard to other societies in the state, and Dr. D. N. Mergens accepted a fellowship in psychiatry for the training of general practitioners at the Nebraska Psychiatry Institute. Two new members were accepted into our society—Dr. Ronald Kloster of Mayville and Dr. Donald Breen of Hillsboro.

Elections were held at our January 8, 1964, meeting. The officers are as follows:

President	DR. KARL OJA	Portland
Vice-president	DR. DONALD KLOSTER	Mayville
Secretary-treasurer	DR. R. W. McLEAN	Hillsboro
Censor—three years	DR. JAMES LITTLE	Mayville
Censor—two years	DR. DONALD BREEN	Hillsboro
Censor—one year	DR. KENNETH WAKEFIELD	Cooperstown
Delegate	DR. JAMES LITTLE	Mayville
Alternate delegate	DR. L. A. LaFLEUR	Mayville

R. W. McLean, M.D.
Councillor, Tenth District

REPORTS OF STANDING COMMITTEES

Committee on Medical Education

The Committee on Medical Education held 2 meetings during the past year, the first on May 4, 1963, and the second on October 6, 1963.

The committee discussed at length the loan fund of the medical center in Grand Forks under the current mill levy. It was thought that the committee should review the workings of the loan fund and make any suggestions for change that might be agreed upon. Dr. Harwood summarized the experience of the loan fund to date and brought the following points before the committee. By the end of 1960, $258,900 had been loaned to medical students in their third and fourth year. Of this, 13 loans totaling $21,000.00 had been forgiven under the provisions of the act. Interest paid on loans through 1960 totaled $20,113.73 or approximately an amount equal to that which had been forgiven. Review of the statistics indicated that medical center loans were not proving a significant factor in bringing physicians back to the state. For example, from 1951 to 1955, before the loan funds were available, 38 graduates of the university medical school returned to practice in North Dakota, and in the period 1956 to 1960, under the provisions of the loan fund, only 26 former students had returned to practice in the state. It was pointed out that money loaned to the students comes from income received from the medical center mill levy, and up to $75,000 yearly can be used for this purpose. There was a general discussion by the members of the committee about the problems of attracting students to medicine in view of the competition posed by stipends and scholarships readily available to students interested in other scientific programs. It was noted also that federal loans and AMA-ERF loan funds will improve the resources available to medical students in the future. It was the opinion of the committee that the medical center loan funds would very likely become a supplement to loans from the federal government and AMA-ERF in the future in view of the more liberal provisions of these other lending agencies and lower interest rates. Most probably, students will look to the medical center mill levy loan fund in the future only to supplement loans from other sources or in the event that they might be unable to obtain such a loan. It is also to be noted that loans are now available to dentistry students from the same fund, and considerable interest has been shown by this group in the loan fund. After a rather lengthy and thorough discussion of the entire problem, the committee decided that no recommendations should be made at this time to change the provisions of the loan fund until after more experience is gained and the full effect of the AMA-ERF and federal government loans on the program is noted. At the present time, the university medical school is able to operate within the monies available under the mill levy, and the loan fund does not constitute a serious drain upon the funds available. The committee also discussed the medical center rehabilitation unit. The question was posed as to whether or not this constituted an unnecessary drain on the medical center funds. Dean Harwood stated that the rehabilitation unit was operating under its full capacity at this time, but it had proven to be a very valuable facility for the training of students in physical diagnosis. A great need exists at this time for a physician trained in physical medicine to head the facility and several applicants were to be interviewed. He went on to state that the unit had consulting specialists, and it was the policy not to deny treatment to anyone from the state of North Dakota even though they might not be able to pay for it. He concluded by saying that a drain on medical center funds was not significant at this time to create a problem. The unit did have income from patients and that perhaps not more than $40,000 annually was spent to maintain the facility out of the medical center mill levy funds.

It was noted by the committee that a number of subspecialty societies in the state held meetings from time to time and brought in speakers of national prominence. It was thought that the committee might suggest to these societies the feasibility of holding their meetings in the same city on the same date so that the speakers might be shared by other societies. This was not to indicate in any way that we felt that these meetings should be combined, but only that the speakers should be shared. This suggestion will be brought to the heads of the various societies to see if some coordination might be worked out. The committee also decided that in the future they would have only one meeting a year, and this would be held in the fall with the preceptors of the medical school invited to attend the sessions. The exact time and place of these meetings were not finally decided.

R. J. Ulmer, M.D., Chairman

Committee on Necrology and Medical History

Life is a pure flame, and we live by an invisible sun within us.

Sir Thomas Browne

P. J. WEYRENS, M.D.

Dr. Peter James Weyrens, who began his medical career at the turn of the twentieth century, died in a hospital in Oakes, North Dakota, on July 31, 1963. He had celebrated his ninetieth birthday in good health in March.

Dr. Weyrens was born on a farm near Cold Spring, Minnesota, March 12, 1873. His medical training was received at the University of Minnesota where he received his degree in 1900. He practiced at Red Wing and Ivanhoe, Minnesota, until 1910 when he was licensed in North Dakota and located at Sheldon. He left Sheldon about 1926 and spent two years at Akeley, Minnesota, before returning to North Dakota where he practiced medicine at Hebron for more than thirty years. Following his retirement he moved to Oakes, where he had made his home since.

Dr. Weyrens was a charter member of the Hebron Lions Club, and in 1959 he was honored with a plaque commemorating thirty years of medical service in Hebron. He became a member of the 50-Year Club of the North Dakota State Medical Association in 1950 and an honorary member in 1960.

He married Frances Hachel of New Ulm, Minnesota, in 1904. She preceded him in death in 1956. Surviving are one daughter and a son.

D. W. PALMER, M.D.

Dr. Dolson William Palmer, Cando physician, died September 2, 1963, from injuries suffered in an automobile accident near Drayton.

He was born December 22, 1901, in Uniontown, Washington, and spent his boyhood at Pine City and Rosalia, Washington, where he graduated from high school. He completed his premedical study at Washington State College and graduated in 1927 from the University of Michigan School of Medicine. Dr. Palmer interned at St. Lukes Hospital at Spokane, and in private practice served at Oaksdale and Clarkston, Washington.

He entered the United States Indian Service in 1933 and worked in Wisconsin, Washington, and North Dakota. In 1942 he entered the U.S. Veteran's Service at Livermore, California, and in 1943 established his medical practice at Cando.

In 1954 Dr. Palmer built the Palmer Clinic, and the following year he was joined by Dr. G. H. Hilts in a partnership. He was actively associated with this clinic at the time of his death.

Dr. Palmer served as mayor of Cando for four years and a member of the city council for six years. He was a director of the First State Bank of Cando, and a member of the Methodist Church, the Cando Fire Department, the Cando Golf Club, Dakota Rifle and Pistol Club, National Rifle Association, Elks Lodge of Devils Lake, and the Devils Lake Country Club. He was a past master of the Masonic Lodge of Cando and a member of the Turtle Mountain Shrine Club, Knights Templar of Devils Lake, and Kem Temple of Grand Forks. In addition to being a member of the medical association, he was also a member of the Academy of General Practitioners and a life member of the University of Michigan Alumni Union.

In 1957 Dr. Palmer was married to Kathleen Sihler Toomey who survives him together with 3 daughters from a previous marriage.

W. H. LONG, M.D.

Dr. William H. Long, a Fargo physician for thirty-seven years, passed away unexpectedly at his home on October 1, 1963, at the age of 75.

He was born July 30, 1888, at Elysian, Minnesota. He attended primary school there, high school at Mankato, Minnesota, and was a graduate of the University of Minnesota Medical School, receiving his medical degree in 1912. From 1915 to 1921 he practiced medicine in Dickinson, North Dakota; then he joined the Mayo Clinic in Rochester where he served on the staff until 1926 when he began practice in Fargo. He had been associated with the Dakota Clinic since that time.

Dr. Long served with the 89th Division Base Hospital during World War I, including a year overseas in France. In professional associations he was a fellow of the American College of Physicians and a member of the North Dakota State Medical Association, serving as its president from 1938 to 1939. He became a member of the 50-Year Club of the Association in 1962 and was given an honorary membership. Dr. Long was president of the Mayo Foundation Alumni Association from 1941 to 1947 and had served on the State Board of Medical Examiners for many years in North Dakota. He was a member of the

Masonic Lodge, the American Legion, the Navy League of the United States, and the Fargo Country Club. In other community activities he had worked as a volunteer in the Red Cross and the Community Chest, the forerunner of the United Fund. In 1958 Dr. Long was honored by the Dakota Medical Foundation in Fargo when he was selected as one of the doctors in whose honor the Darrow-Long Lectureship was established.

He married Mary Vaill Tisdale in 1913, who survives him. Also surviving are a daughter and a foster son.

M. T. SAVRE, M.D.

Dr. Melvin T. Savre died October 5, 1963, at the Northwood Deaconess Hospital where he was a patient. He had been failing for some time. He was 81 years old at the time of his death.

He was born at Kensett, Iowa, April 22, 1882. In 1908 he graduated from the medical school at Keokuk, Iowa, and later did post graduate work in medicine at the University of Minnesota.

In 1908 Dr. Savre began his forty-nine years of practice in North Dakota at Sharon, later moving to Northwood in 1914. He retired from the practice of medicine in 1957. He had been a member of the Evangelical Lutheran Church, the Northwood Masonic Lodge, the Grand Forks Shrine Club, and the Grand Forks Elks.

Dr. Savre married Ethel LaVoie of Fosston, Minnesota, in 1929. She survives, as does one son.

In accordance with a ruling of the council, Dr. Savre was to have been presented with an honorary membership and a fifty-year pin, although he had not been a member of the association for some years. Since his death occurred before this could be accomplished, the certificate and pin will be forwarded to the president of the Grand Forks District Medical Society with the request that they be presented to his family.

E. E. GREENE, M.D.

Dr. Everette E. Greene, 73, died at his home in Westhope on November 10, 1963. Cause of the death was given as coronary occlusion.

He was born at Le Sueur, Minnesota, on August 12, 1890. He attended the medical school at the University of Minnesota and graduated in 1915. He practiced medicine at Hatton and Overly, North Dakota, and with Dr. MacKay at Bottineau. In 1916 he went into partnership with Dr. Charles Durnin at Westhope where he was still practicing at the time of his death.

He served his country during World War I in the medical corps and was awarded the Purple Heart.

He had been an alderman and served on the school board at Westhope. He was a life member of the Veterans of Foreign Wars Orlan Cool Post No. 6832 at Westhope and the Peace Gardens Barracks Post No. 1902 at Minot. He was a charter member of the American Academy of General Practice and of the Minnesota Alumni Association. Dr. Greene was the state surgeon for the VFW, and for over forty years he had been the doctor for the Great Northern Railroad.

He was married to Loretta Nelson on August 2, 1920. She survives him, together with 2 sons.

J. P. MERRETT, M.D.

Dr. Joseph Paul Merrett of Valley City died December 2, 1963, at a local hospital. He had been receiving medical treatment for several months. He was 60 years old at the time of his death.

Dr. Merrett was born April 19, 1903, in London, Ontario, Canada. The family moved to Winnipeg when he was a boy, and he attended the Winnipeg schools, including medical school. He received his medical degree and did internship and residency in Winnipeg General Hospital. He was also attached to the Children's Hospital in Winnipeg.

In 1929 Dr. Merrett moved to Marion, North Dakota, where he practiced until 1943 when he located in Valley City. He was in partnership with Dr. C. J. Meredith and later was a partner in the Valley City Clinic.

Dr. Merrett was a member of national, state, and district medical associations, the American Academy of General Practice, the Valley City Elks Lodge, and the Valley City Masonic Lodge.

On June 1, 1929, Dr. Merrett was united in marriage with Violet Neelin in Swan Lake, Manitoba. She survives him, as do 5 daughters and 1 son.

H. W. MILLER, M.D.

Dr. Harry W. Miller, 81, passed away January 19, 1964, in Van Nuys, California, where he had been making his home with a daughter.

Born at Wahpeton, North Dakota, January 15, 1883, Dr. Miller was educated in St. John's parochial school and Wahpeton High School and was graduated from Red River Valley University at Wahpeton, later to be called Wesley College, and moved to Grand Forks. He received his medical degree from the medical school of the University of Minnesota in 1906. After an internship in the Northern Pacific Hospital in Missoula, Montana, he spent three and a half years on the staff of the state hospital at Jamestown, North Dakota. A year of study in Europe, mostly in Vienna, followed, and he returned to Casselton to practice in 1911 in partnership with Dr. William Baldwin.

Dr. Miller practiced more than thirty-seven years in Casselton and was known as Casselton's "family physician." He was honored June 10, 1945, when the community gave him a "Dr. Miller Day" in appreciation of his services to the community. Severely ill of pneumonia in 1949, he retired soon after his recovery.

He married Mabel Gunkle in Casselton on September 20, 1913. They continued to reside there until her death in 1952, when he left the community to make his home with his daughters, who survive him.

E. H. Boerth, M.D., Chairman

(The transactions will be continued in subsequent issues)

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References: 1. Baker, A. G.: Penn. Med. J. *63*:697 (May) 1960. 2. Smith, R. T.: New York Med. (Aug. 20) 1952, pp. 16-19. 3. Smith, R. T.: Med. Clin. N. Amer. (Mar.) 1957. 4. Lehrer, H. W.; Lehrer, H. G., and Lehrer, D. R.: Northw. Med. (Nov.) 1955. 5. Sforzolini, G. S.: Arch. Ophthal. *62*:381 (Sept.) 1959. 6. Gile, J. H.: W. Virginia Med. J. *59*:120-122 (May) 1963.

Book Reviews . . .

Search the Scriptures:
A Physician Examines Medicine in the Bible

by ROBERT B. GREENBLATT, *127 pp., J. B. Lippincott Co., Philadelphia, 1963. $4*

An eminent endocrinologist surveys the scriptures as well as outstanding world literature in the light of recent developments in the field of endocrinology. The results should be extremely fascinating to the medical and lay reader alike. The old biblical characters, as well as ancient customs and traditions, assume a new reality and often acquire entirely different interpretations in the light of scientific observation by a man who is the unique combination of scientist, endocrinologist, biblical scholar, clinician, and humorist.

The author makes no attempt, however, to disprove any basic religious principles but rather allows the strength of his own personal philosophy to shine through, with such statements as, "All that ever was still is; and we would do well to turn from the demands of our days to listen and learn from that which is as old as time, yet everlastingly new."

Interesting endocrinological problems discussed in the book include: "little-man's disease," hermaphroditism, transvestism, congenital adrenal hyperplasia, hypoglycemia, delayed pubescence and sexual inadequacies, circumcision, obesity and fasting, Turner's syndrome, Klinefelter's syndrome, testicular feminization, eunuchoidism, male and female climacteric, breast worship, psychological and physiological bases for sexual behavior, the role of psychotherapy in functional endocrine disorders, geriatrics, the importance of our society's attitude toward the aged, and finally, the role of the physician throughout history.

The reading of Dr. Greenblatt's book is akin to the pleasure of reading poetry, inasmuch as it can be read and reread, not only for the many excellent quotations but for his own philosophical style which has been aptly likened to that of William Osler.

This is a book that would be appreciated by any adult reader and should be required reading for every medical, clerical, and history student. There remains a vast amount of world literature and history to be reinterpreted in the light of our rapidly increasing knowledge of the endocrine basis of human behavior. Let us hope this is the first of a long series of such books by this author.

JANE E. HODGSON, M.D.
St. Paul

The Pathology of the Pulmonary Vasculature

by C. A. WAGENVOORT, DONALD HEATH, *and* JESSE E. EDWARDS, *194 pp., ill., Charles C Thomas, Springfield, Ill., 1964. $25.50*

Three world authorities from the Netherlands, Great Britain, and United States have collaborated to produce this outstanding treatise on the pathology of the pulmonary vasculature. Here is an example of luxurious, present day publications. No attempt has been made to save space or crowd material on the pages. There are 704 black-and-white illustrations. Most of these pictures are photomicrographs.

All aspects of the subject are presented in detail, starting with normal pulmonary and bronchial arteries and veins. Lesions of these blood vessels are described. These include congenital and acquired lesions which are primary and secondary to other pulmonary or extrapulmonary diseases. Each subject, although concisely presented, includes a literature review and an extensive bibliography. The opinions of the authors are supported by abundant case material and illustrations.

This book should be read by pathologists, thoracologists, cardiologists, and cardiovascular and thoracic surgeons. The busy practitioner or generalist would not find this book a worthwhile addition to his personal book collection because the subject matter is restricted to a relatively narrow field and does not lend itself to rapid reading. However, any medical library should include *The Pathology of the Pulmonary Vasculature.* It is an authoritative contribution well indexed for rapid reference work.

JOSIAH FULLER, M.D.
Duluth, Minnesota

George Hoyt Whipple and His Friends:
The Life-Story of a Nobel Prize Pathologist

by GEORGE W. CORNER, *335 pp., ill., J. B. Lippincott Co., Philadelphia, 1962. $5.50*

In this biography of Dr. George Hoyt Whipple, George W. Corner has admirably told in a clear, interesting, simple, and accurate manner about one of America's most outstanding pathologists.

In reading about the life of this great dedicated doctor of medicine, one is impressed with his energy and foresight. Not only did Dr. Whipple first describe intestinal lipo-dystrophy in 1907, he also first classified the pathogenesis of black water fever while in the Canal Zone in 1909. This started his interest in the study of hemoglobin and its relationship to jaundice.

During his studies of chloroform poisoning, Dr. Whipple gave to medicine a better understanding of hemoglobin breakdown and bilirubin metabolism in the liver. By 1913 his interest in hemoglobin encouraged him to investigate and describe hemorrhagic disease of the newborn, coagulation difficulties, pernicious anemia, and iron metabolism. His work in these fields was found to be accurate and has withstood the test of time. Later studies were done on protein metabolism.

In addition to these achievements in medicine, Dr. Whipple, in 1912, also organized and directed the George William Hooper Foundation, a department of research of the University of California. In 1921 he organized the medical school at the University of Rochester. Dr. Whipple's achievements were invaluable and it appeared American medicine was on the threshold of becoming better than it had ever been in the past.

The life story of Dr. George Hoyt Whipple is an inspiration to every physician and should stimulate the clinical practitioner, as well as pathologist, to evaluate the problems of medicine more carefully. In addition, it should help the student of medicine understand better the early history of American medical education and become cognizant of the time, effort, and satisfaction necessary for the understanding of biophysiological and pathological problems.

D. L. MICHAELIS, M.D.
Duluth, Minnesota

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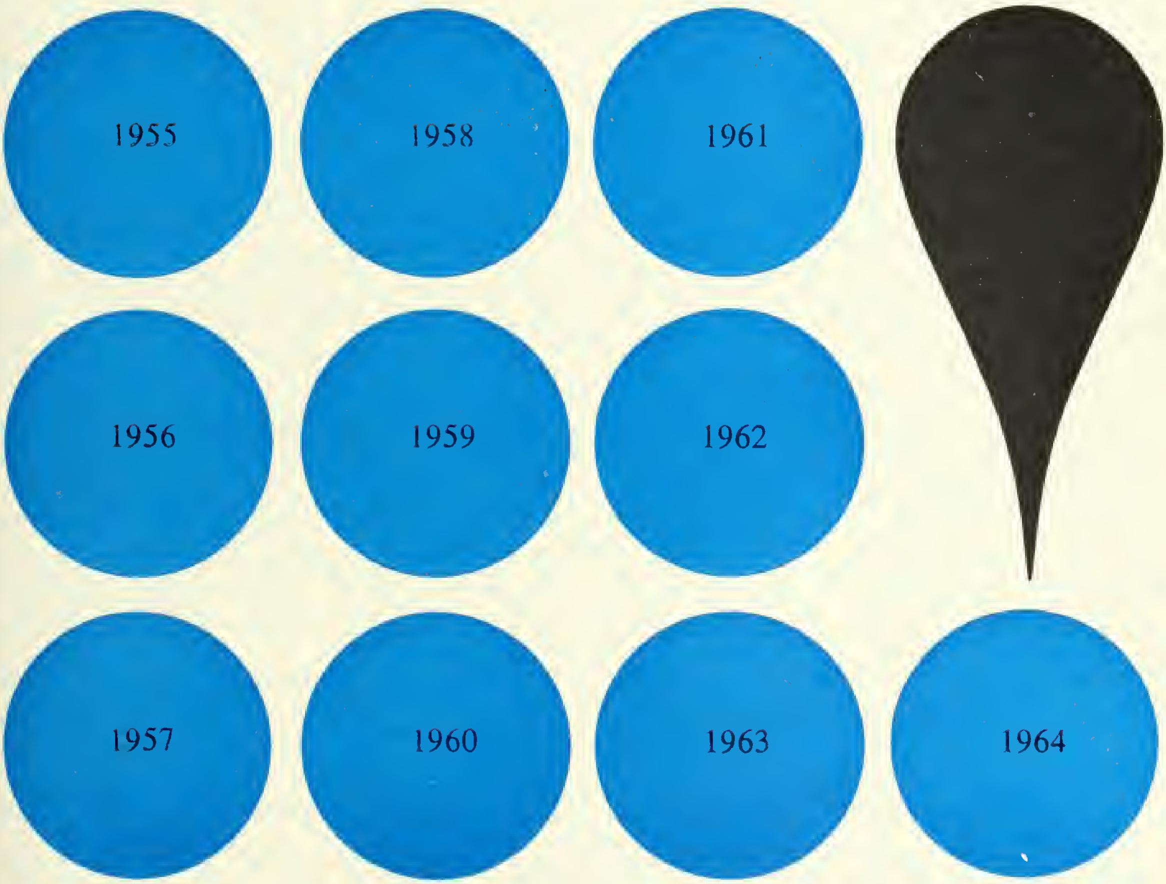

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News Briefs . . .

North Dakota

A SYMPOSIUM on language and behavioral manifestations of organic brain disease is scheduled for the Minnesota Society of Neurological Sciences meeting to be held in association with the Neuropsychiatric Institute of Fargo, Oct. 23-24. The meeting is planned as part of the dedication program of the Neuropsychiatric Institute Hospital of St. Luke's Hospitals, Fargo. Speakers will include Dr. John D. French, University of California; Dr. Norman Geschwind, Boston Veterans Administration Hospital; Dr. Lawrence C. Kolb, Columbia University; and members of the Minnesota Society. Main dedication speaker will be Dr. Collin S. MacCarty of the Mayo Clinic.

* * * *

DR. JAMES R. BISHOP, a native of England, has joined Drs. John A. Beall and Duane M. Clement in general practice in Jamestown. He attended the University of Leeds and completed his medical training at Leeds Medical School. He served with the British Army in Malaya for three years. After brief practice in England, he moved to Saskatchewan in 1961.

* * * *

DR. REX W. TIDWELL has been assigned to the Indian Health Center at Fort Totten. A native of Cantonment, Fla., he was commissioned by the U.S. Public Health Service in April after completion of internship at Mobile General Hospital, Ala.

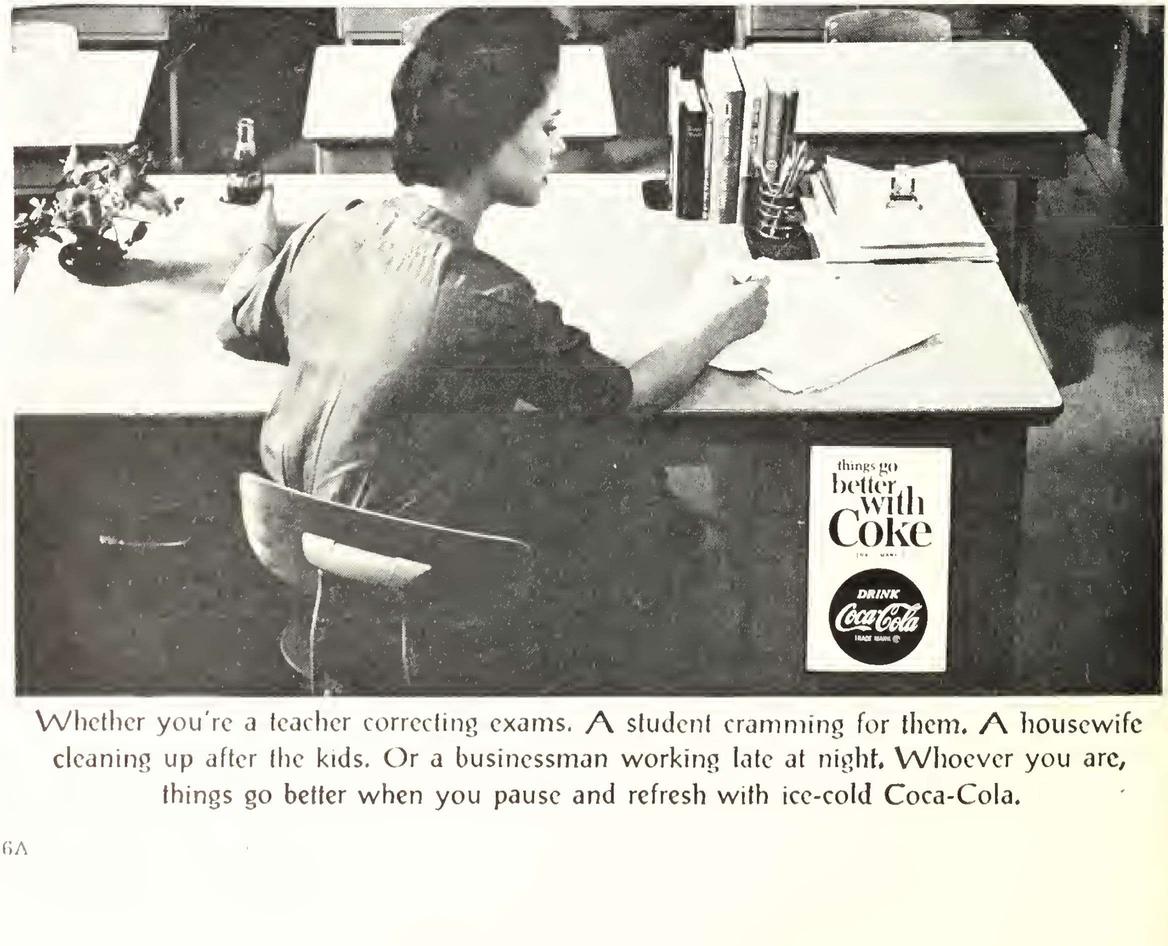
DR. ALLEN HILL, a native of Ellendale, has affiliated with the Kulm Clinic. He received his medical degree from the University of Wisconsin and completed internship at Sioux Valley Hospital, Sioux Falls.

* * * *

DR. GARY D. CODY, a native Texan who received his B.S. degree from Jamestown College, has joined the Cavalier Clinic staff. He received his medical degree from the University of Pennsylvania and completed internship at Marion County General Hospital, Indianapolis.

* * * *

FOUR PHYSICIANS have joined the Quain and Ramstad Clinic in Bismarck. Drs. Earl D. Peterson, Dale R. Oien, and William F. Hook are in general practice and Dr. William C. Riecke in pediatrics. Dr. Peterson, a Minot native, took undergraduate work at the University of North Dakota and received his medical degree from the University of Texas. He interned at Ancker Hospital, St. Paul. Dr. Oien, born in Devils Lake, did undergraduate work at Concordia College and the University of North Dakota and received his medical degree from the State University of Iowa. He interned at Ancker Hospital. Dr. Hook received his medical degree from the Jefferson Medical College, Philadelphia, after undergraduate study at Stanford University, Palo Alto. He interned at the U.S. Naval Hospital, Pensacola, Fla. Dr. Riecke attended the University of North Dakota and



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received his medical degree from Tulane University, New Orelans. He interned at Martin Army Hospital, Fort Benning, Ga., and completed residency at Iowa Methodist Hospital, Des Moines.

* * * *

DR. DONALD A. CARLSEN has begun private practice in Mandan after a three-year residency in obstetrics and gynecology at Swedish Hospital, Seattle. A native of Bismarck, he was graduated from the University of North Dakota in 1954 and received his medical degree from Temple University School of Medicine, Philadelphia, in 1957. He interned at St. Vincent's Hospital, Portland, Ore., and served with the Navy Medical Corps for two years.

* * * *

DR. GYMAN C. OKESON has joined the Craven-Hagan Clinic staff in Williston. A native of Parshall, he did undergraduate work at the University of North Dakota and received his medical degree from Baylor University, Houston, in 1962. He interned at Marion County General Hospital, Indianapolis, and took additional courses in internal medicine at St. Luke's Hospital, Fargo.

* * * *

DR. JOHN E. HESTER, a graduate of the Jefferson Medical College, Philadelphia, has joined Dr. Duane D. Rubbert of the LaMoure Clinic. A native of West Virginia, he interned in the Navy and practiced in Pennsylvania and West Virginia.

* * * *

DR. SELDON R. HOOVER, urologist, has joined the staff of the Veterans Administration Hospital in Fargo, relocating from the Veterans Administration Hospital in Big Spring, Texas. A native of Missouri, he received his medical degree from St. Louis University.

* * * *

DR. JAMES B. MURRAY has been elected chief of staff and Dr. Kent E. Darrow emeritus chief of staff of Dakota Hospital, Fargo, a community, nonprofit hospital scheduled to admit its first patients this fall. Other officers are Drs. Walter L. Owens, Frank M. Melton, Robert J. Ulmer, and Neil S. Williams. The hospital is sponsored by the Dakota Medical Foundation.

Minnesota

DR. HOWARD R. SNIDER of the Mankato Clinic, has been appointed Minnesota regent on the International College of Surgeons national board for 1964-65. He also is a diplomate of the American Board of Surgery and a fellow of the American College of Surgeons.

* * * *

DR. HAROLD G. BENJAMIN of Edina, who commands the 204th Medical Battalion, 47th Infantry Division, has

(Continued on page 20A)

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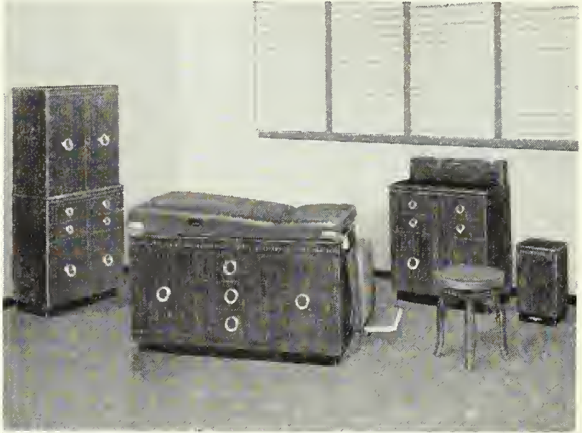

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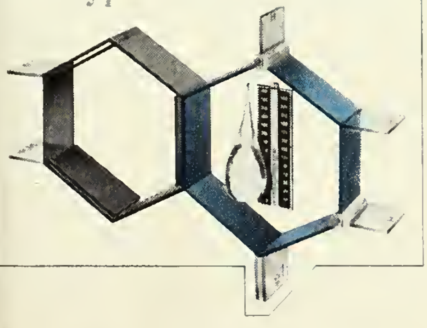

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CONTRAINDICATION: Anuria.

1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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NEWS BRIEFS

(Continued from page 17A)

received the Minnesota Medal for Merit. Presentation was made at Camp Ripley during summer encampment of the Minnesota National Guard. Dr. Benjamin is a lieutenant colonel.

* * * *

THIRTY-FIVE ALUMNI of the University of Minnesota Mayo Foundation for Medical Education and Research, Rochester, received the university's Outstanding Achieveent Award during Mayo Centennial Year observances. Recipients were Drs. Edward W. Boland, University of Southern California; R. Lee Clark, Jr., University of Texas; George R. Constam, University of Zurich, Switzerland; Irving S. Cooper, New York University; Ralph A. Deterling, Jr., Tufts University; Brown M. Dobyns, Western Reserve University; Donald M. Douglas, University of St. Andrews, Dundee, Scotland; William W. Engstrom, Marquette University; Thomas B. Fitzpatrick, Harvard University; Piero Frugoni, University of Padua, Italy; Grace A. Goldsmith, Tulane University; Hirotoshi Hashimoto, St. Luke's International Hospital, Tokyo; Nicholas C. Hightower, Jr., Scott and White Clinic, Temple, Texas; C. Adrian M. Hogben, State University of Iowa; Dwight J. Ingle, University of Chicago; Walter H. Judd, Washington, D.C., former Minnesota congressman; Nandkumar Hemraj Keswani, All-India Institute of Medical Sciences, New Delhi; Paul E. Lacy, Washington University; Alexander Leaf, Harvard University; Sir James R. Learmonth, Glasgow University Court, Scotland; Walter C. Lobitz, Jr., University of Oregon; W. Randolph Lovelace II, Lovelace Foundation for Medical Education and Research, Albuquerque; Sarah A. Luse, Washington University; Daniel F. Lynch, Washington, D.C.; Walter C. MacKenzie, University of Alberta, Edmonton, Canada; Stanley W. Olson, Baylor University; Raymond D. Pruitt, Baylor University; Joseph E. Rall, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md.; Edward C. Rosenow, American College of Physicians, Philadelphia; Robert F. Rushmer, University of Washington; Belding H. Scribner, University of Washington; Wade Volwiler, University of Washington; Homer R. Warner, University of Utah; C. Stuart Welch, Albany Medical College of Union University; and Dwight L. Wilbur, Stanford University.

* * * *

DR. MYRON I. DOEBLER of Bagley has joined the staff of the Mora Clinic. He will be associated with Drs. Harry L. Berge and Edgar C. Burseth.

* * * *

DR. JAMES L. HARTFIELD, JR., has joined the Olmsted Medical Group in Rochester. A pediatrician, he received his medical degree from Baylor University, Waco, and interned at Jefferson Davis Hospital, Houston. He recently completed a fellowship at the Mayo Foundation.

* * * *

DR. DONALD H. FREEMAN has affiliated with the Mankato Clinic as an internist. Most recently he has been an instructor in medicine at the University of Kansas, Kansas City. A native of Allentown, Pa., he received his medical degree from Jefferson Medical College, Philadelphia, in 1954 and entered military service after internship. He was in general practice for three years at Catasauqua, Pa., before specializing in internal medicine at the University of Kansas.

* * * *

TWO EMERITUS MEMBERS of the Mayo Clinic have accepted positions as consultants at Rochester State Hospital. Dr. Louis E. Prickman, former head of a section of medicine who retired in 1962 after thirty-three years' service, will alternate with Dr. Frank J. Heck, also a former section head. Each will serve six months at a time to help with the hospital's expanded medical-surgery program for other state institutions in southern Minnesota.

* * * *

DR. ARTHUR M. OLSEN of the Mayo Clinic, president of the Minnesota Tuberculosis and Health Association, was a faculty member at a workshop near Brainerd in August. The workshop was sponsored by the State Department of Education and Health and the Minnesota Thoracic Society to instruct teachers in respiratory disease control.

* * * *

DR. OWEN W. HOLM has joined the Northwestern Clinic in Crookston as a general surgeon. He received his medical degree from the University of Minnesota, interned at Ancker Hospital, St. Paul, and was in general practice in St. Cloud for a year. He served with the Air Force during 1957-59 and was a resident in surgery at University of Minnesota Hospitals and St. Louis City Hospital.

* * * *

DR. ERICK REEBER, Frazee, has joined the Clearwater Clinic in Bagley. He had been with the Frazee Community Health Center since 1961.

* * * *

DR. ANTHONY A. SPAGNOLO, formerly with the U.S. Public Health Service, has joined the Shakopee Medical Center as a general practitioner. Born in Pittsburgh, he received his medical degree in 1961 from the Stritch School of Medicine, Loyola University, Chicago. He interned at St. Joseph's Hospital, South Bend.

* * * *

DR. JOSEPH A. STENZEL, a native of Mapleton, has begun practice in Minneapolis after completion of internship at St. Mary's Hospital there. He received his medical degree from the University of Minnesota and served two years with the Marines.

* * * *

DR. RAYMOND L. BAIRD of St. Paul has opened practice in Harmony. He also serves nearby Hayfield.

* * * *

DR. ROBERT W. SPLETTSTOESSER, a graduate of Baylor University College of Medicine, Houston, has opened practice in Bigfork. A native of Waconia, he interned at Cook County Hospital, Chicago, and also took postgraduate training there.

* * * *

COMMUNITY MEMORIAL HOSPITAL medical staff officers at Winona have been reelected. Renamed are Dr. Herbert Heise, president, Dr. Frederick J. Vollmer, vice-president, and Dr. Louis J. Wilson, secretary.

* * * *

DR. NORMAN W. HOOVER, chairman of the orthopedic department of Project HOPE, recently completed a five-week assignment on the hospital ship SS HOPE at Guayaquil, Ecuador. A Mayo Clinic orthopedic surgeon, he was the first clinic staff member to serve aboard the hospital ship a few years ago. The ship is scheduled for a year's stay on the African Gold Coast.

* * * *

DR. JOHN F. FINCH of Urbana, Ill., has joined the pediatric staff of the new Mankato Clinic. Born in Minneapolis, he studied at the University of Illinois and received his medical degree from Washington University, St. Louis. He interned at Ancker Hospital, St. Paul, and served a

(Continued on page 22A)

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NEWS BRIEFS

(Continued from page 20A)

two-year pediatric residency at the University of Oregon Medical School, Portland. He spent two years in the military pediatrics department at Scott Air Force Base, Illinois.

° ° ° °

DR. RONALD J. ZABRANSKY has been named a consultant in the section of microbiology at the Mayo Clinic. A graduate of Rutgers University, he received his M.S. and Ph.D. degrees in microbiology at Ohio State University and joined the Mayo Clinic in July 1963.

° ° ° °

DR. ARVID J. HOUGLUM, a general practitioner for eleven years in Lake Park, has been awarded a federal grant for a year of public health study at the University of Minnesota.

° ° ° °

DR. HOWARD F. POLLEY, a consultant in medicine at the Mayo Clinic, has been elected president of the American Rheumatism Association. He received his M.D. degree at Ohio State University in 1938 and has been with the Mayo Clinic since 1940; he earned a master of science in medicine degree at the University of Minnesota in 1945. Dr. Polley was elected at the association's annual meeting in San Francisco.

° ° ° °

DR. PAUL D. RUD has joined Dr. Donald M. Odland in practice in Luverne, following internship at Sioux Valley Hospital, Sioux Falls, S.D. A North Dakota native, he lived in Langford, S.D., and attended the University of South Dakota. He earned his M.D. degree from the University of Wisconsin in 1963.

° ° ° °

DR. WILBUR F. CANT, a pediatrician, has joined the staff of the Interstate Clinic in Red Wing. A graduate of the University of Illinois College of Medicine, he served two years in the Air Force and took a pediatric residency at the Milwaukee Children's Hospital. Dr. Cant practiced in Madison, Wis., before moving to Red Wing.

° ° ° °

THREE MAYO CLINIC staff members have retired, 8 new consultants have been named, 16 fellows have been named assistants, and 120 new fellows and 7 special appointees have been announced by the Mayo Clinic and Foundation, Rochester. Retiring are Drs. Nelson W. Barker, Joseph Berkson, and Haddow M. Keith, whose combined service at Mayo totals more than a century. Dr. Barker has been a clinic consultant since 1930; he was head of a section of medicine concerned mainly with diseases of blood vessels. Dr. Berkson, a biostatistician and mathematician, has been head of the section of biometery and medical statistics since 1934. Dr. Keith became a consultant in the section of pediatrics in 1930 and practiced in Canada from 1932 to 1939; he returned to the clinic in 1939. He has been a senior consultant in pediatrics since 1957. The 8 new consultants include Dr. Eric P. Lofgren who joins his brother, Dr. Karl A. Lofgren in the section of peripheral vein surgery; Drs. Robert C. Burton, Robert P. Dinapoli, and William E. Karnes, all in the sections of neurology; Dr. Arnold Feld-

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man in biophysics; Dr. Richard G. Hahn in clinical oncology; Dr. Paul F. Leonard in anesthesiology; and Dr. Walter E. Miller in diagnostic roentgenology. Promoted from fellowships to assistantships are Dr. Leo F. Black, thoracic sections; Dr. Charles F. Bolton, neurology; Dr. Roger S. Colton, rheumatology; Dr. Allan J. D. Dale, neurology; Dr. Hugh D. Greer III, neurology; Dr. Ronald J. Forth, internal medicine; Dr. Gary A. Fry, internal medicine; Dr. Henry B. Hahn, Jr., pediatrics; Dr. Bennett A. Horner, internal medicine; Dr. Ronald F. Kettering, internal medicine; Dr. Raymond A. Lee, obstetrics and gynecology; Dr. William E. Rawls, internal medicine; Dr. Ann H. Schutt, physical medicine and rehabilitation; Dr. Robert E. Stack, orthopedic surgery; Dr. Carlo M. Veneziale, internal medicine; Dr. Robert Wilson, Jr., psychiatry; and Dr. Alan L. Yudell, neurology.

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DR. GEORGE R. MCNEAR, JR., formerly with the Mankato Clinic, has begun practice in Heron Lake, offering full-time medical care to the community for the first time in eleven years. Dr. McNear, 41, received his medical training in the Boston and New York area and has specialized in obstetrics, gynecology, and surgery.

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DR. MOSES BARRON, 81, whose investigative career was instrumental in the discovery of insulin, was honored recently by the Mount Sinai Hospital Association, Minneapolis. A new hospital laboratory has been named the Dr. Moses E. Barron Laboratory for Pathology. Dr. Barron retired from the University of Minnesota faculty in 1952. He and Mrs. Barron will move to Los Angeles.

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DR. RAYMOND BAIRD of Rochester is establishing a practice in Harmony. He had been practicing afternoons in Hayfield but now is devoting full time to the Harmony area.

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DR. RANDALL G. SPRAGUE, senior consultant in medicine at the Mayo Clinic and professor of medicine in the graduate school, Mayo Foundation, received an honorary doctor of laws degree from the University of Toronto in July. The presentation was for "outstanding contribution to the practice of medicine in relation to diabetes." He received his M.D. degree from Northwestern University in 1935, interned at the Presbyterian Hospital in Chicago, and became a fellow in medicine at Mayo in 1936. In 1942 he received a Ph.D. in medicine from the University of Minnesota and in 1948 he was named head of a Mayo section of medicine concentrating on endocrine disease.

◆ ◆ ◆ ◆

JAMES LUEDERS has accepted a scholarship from the community of Evansville and has agreed to practice there after internship. Evansville, without a doctor since 1960, has staged Fourth of July fund-raising celebrations for three years to equip a clinic and obtain a physician. Lueders is a senior medical student at the University of Minnesota.

◆ ◆ ◆ ◆

DR. BENJAMIN M. TUMA has joined the Family Medical Clinics of Montgomery and Lonsdale. He is practicing general medicine, obstetrics, and surgery and is associated with Drs. Alfred J. Lehrer and Alfred E. Daly. Dr. Tuma attended the College of St. Thomas in St. Paul and obtained his M.D. degree from Marquette University in Milwaukee. He recently completed two years of service with the Division of Indian Health, U.S. Public

(Continued on page 24A)

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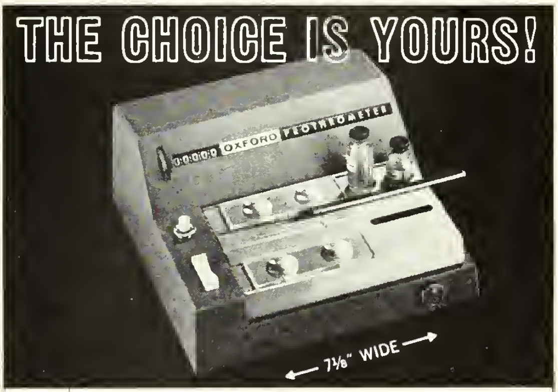

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NEWS BRIEFS

(Continued from page 23A)

Health Service, in charge of the P.H.S. Indian Hospital in Pawnee, Okla.

* * * *

DR. JOHN J. SEVENANTS, a La Crosse, Wis., dermatologist, has opened a part-time office in Winona. He received both M.D. and M.S. degrees in dermatology from the University of Minnesota.

* * * *

DR. LLOYD A. WHITESELL, JR., a University of Minnesota graduate, has begun general practice in Shakopee, associated with Dr. Bror F. Pearson. He had been examining physician for the Army Recruiting Center in Minneapolis.

* * * *

DR. DALE A. BERGERON has returned to Le Sueur to resume practice following a year of residency in internal medicine at the University of Minnesota Hospitals. He is affiliated with the Minnesota Valley Medical Associates.

* * * *

DR. C. C. CLAWSON, a native of Montevideo, has left practice there to join the department of pediatrics at the University of Minnesota where he will be concentrating in pediatric research. He received his M.D. degree from the University of Minnesota and practiced in Montevideo during the past year.

South Dakota

DR. ROBERT G. ATWOOD of Madison, Wis., has been assigned to the Rosebud Public Health Service Indian Hospital. He received his medical degree from the University of Wisconsin and had a one-year general practice residency in Seattle. He was commissioned in the U.S. Public Health Service in 1963.

* * * *

DR. WILLIAM A. BORMES has joined his brother, Dr. Robert E. Bormes, and Dr. Bernard C. Gerber in the practice of thoracic and cardiovascular surgery in Aberdeen. They plan to establish a laboratory and train a team for open heart surgery. For the past two years, Dr. Bormes was a resident in thoracic and cardiovascular surgery at National Jewish Hospital, Denver, and clinical instructor in surgery at the University of Colorado. A diplomate of the American Board of Surgery, he was born in Beardsley, Minn., took premedical studies at George Washington University, and received his degree from Marquette University. He interned at St. Joseph Hospital, Denver, with a four-year residency in surgery at Veterans Administration Hospital, Milwaukee.

* * * *

DR. LEONARD S. LINNELL, a native of Chicago, has joined the medical staff of Veterans Administration Hospital, Fort Meade. He specialized in tropical medicine at London Tropical Medicine School. He served four years in a hospital at Tanganyika, Africa, where, as a child, he had lived for four years when his father was a Lutheran missionary. Recently, he was a resident in psychiatry at Veterans Administration Hospital, Minneapolis.

* * * *

DR. HUGH HENDERSON has been assigned to the Public Health Service Indian Center at McLaughlin. A former resident of New Kensington, Pa., he studied at Pennsylvania State University, received his medical degree

(Continued on page 26A)

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NEWS BRIEFS

(Continued from page 24A)

from Jefferson Medical College of Philadelphia, and interned at Allentown General Hospital. He was commissioned in the U.S. Public Health Service in June.

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DR. KENNETH MONSMA, a graduate of State University of Iowa, has been assigned to the Public Health Service Indian Hospital at Fort Yates. He interned in Seattle.

Deaths . . .

DR. HARRY G. IRVINE, 82, a pioneer in venereal disease eradication, died Aug. 24. He had been a faculty member of the University of Minnesota Medical School for forty-four years and a practicing physician in Minneapolis for more than fifty. During World War I, he set up a model venereal disease control program in California. He organized a similar program in Minnesota and directed it until retirement four years ago. Born in Portland, Maine, he grew up in Minnesota and received his medical degree from the University of Minnesota in 1903.

° ° ° °

DR. ANDREW S. ARNQUIST, 66, St. Paul, died Aug. 14. A Wisconsin native, he took undergraduate work at Lawrence College, Appleton, and received his medical degree from the University of Illinois College of Medicine.

° ° ° °

DR. CHARLES E. GOODMAN, 78, Virginia, Minn., school physician for thirty-seven years, died July 19. He was born in Chicago, received his medical degree from Northwestern University in 1911, interned at Cook County Hospital, Chicago, and in 1914 joined the staff of McIntyre Hospital in Virginia. When the hospital closed, Dr. Goodman went into private practice. In 1928 he was appointed school physician. He was a member of the American Medical Association, the Minnesota State Medical Association, and the St. Louis County and Range medical societies.

° ° ° °

DR. PETER E. HERMANSON, 65, a general practitioner in Hendricks, Minn., since 1929, died June 30. Born in Roland, Iowa, he grew up in the Minnesota communities of Rushton and Tyler. He received his medical degree from the University of Minnesota in 1924. After internship and residency at Ancker Hospital, St. Paul, he began practice at Brainerd. He later practiced at Ivanhoe before moving to Hendricks. He served on the Hendricks school board for twenty-one years. A former president of the Lincoln-Lyon County Medical Society, he was a member of the Minnesota Academy of General Practice and a fellow of the American College of Surgeons.

° ° ° °

DR. FRANK E. BOYD, retired since 1959, died at his home in Flandreau, S.D., July 25. He was 62. Born in Little Sioux, Iowa, he received his medical degree from State University of Iowa. He practiced in Armour for ten years and in Mitchell for three, moving to Flandreau in 1940.

° ° ° °

DR. ALLAN J. HILL, JR., 49, formerly of Minneapolis, died July 25 at Portola Valley, Calif. He received his medical degree from the University of Minnesota. He had been

(Continued on page 28A)

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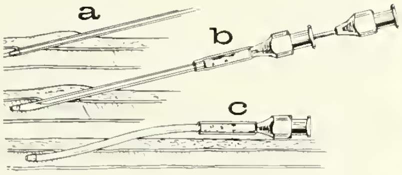

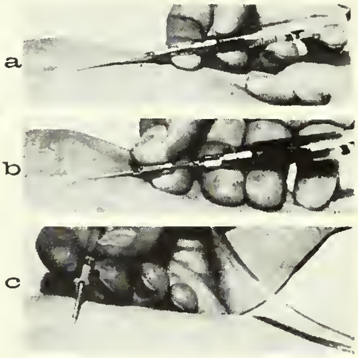

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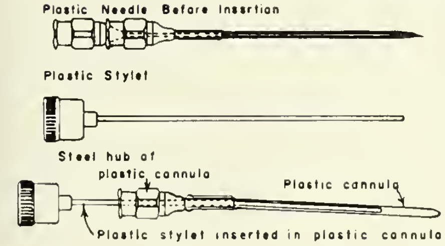
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Plastic cannula
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(Continued from page 26A)

an instructor at Tulane University School of Medicine, New Orleans, a staff member of Lying-in Hospital in Chicago, and head of the pediatric department at the University of Oregon Medical School.

° ° ° °

DR. MYRON J. HERTZ, St. Paul, died in a car accident Aug. 6. The 52-year-old general practitioner was a lifelong resident of that city and a 1939 graduate of the University of Minnesota Medical School. He was a staff member of St. Luke's Hospital and had held city and county medical posts since 1940. He was a member of the American Academy of General Practice, American Medical Association, and Ramsey County Medical Society.

° ° ° °

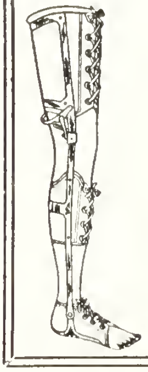
DR. LAWRENCE O. BOYLE, 71, for years team physician for University of Minnesota football squads, died Aug. 11 in Minneapolis. A center on the 1917-18 teams, he received his medical degree in 1920. He served with the Army Medical Corps in World War I. A former chief of staff of St. Mary's Hospital, Minneapolis, he was a member of the American Medical Association, the Minnesota State Medical Association, and the Hennepin County Medical Society and a fellow of the American College of Surgeons.

° ° ° °

DR. EDWARD A. EBERLIN, 86, died at Glenwood Community Hospital July 25. One of the oldest practicing physicians in Minnesota, he was the last surviving member of the University of Minnesota Medical School class of 1901. He began practice in Glenwood that year and remained active until five days before his death. He used a horse and buggy for early calls, switched to a car in 1910, and delivered more than 3,000 babies. He was a native of Blue Earth.

° ° ° °

DR. CLYDE E. WILSON, who practiced in Blue Earth for fifty-two years, died Aug. 9 at St. Mary's Hospital, Rochester. He was 79. A native of the area, he was graduated from Blue Earth high school in 1905 and Hamline University in 1907. He received his medical degree from the University of Illinois in 1912. Long active in civic affairs, Dr. Wilson was a member of the school board for nearly forty years. Last January, the Minnesota Education Association honored him as the state's outstanding school board member. He was county coroner for many years. He was an avid outdoor enthusiast and conservationist. A former president of the Blue Earth Valley Medical Society, he also was chairman of the county Red Cross chapter and a member of the American Medical Association.



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"We are living in an exciting era in the history of diabetes," says Thomas P. Sharkey, M.D., writing in the December issue of THE JOURNAL-LANCET. During the last few years many discoveries are slowly but surely fitting together the pieces of the metabolic disorder, diabetes mellitus, according to Dr. Sharkey, Dayton, Ohio, president of the American Diabetes Association.

Writing in a paper entitled "Newer Perspectives in Diabetes with Comments on Synthetic Insulin and Oral Agents," read at the recent meeting of the North Dakota State Medical Association, the author states the future promises even more, with the hope that the cause or causes of the disorder will be found, its prevention predicted, and its cure made tangible.

It is estimated that 3.4 million persons in the United States have diabetes, but of this total 2 million are known. Thus, the true incidence of diabetes has been underestimated. New annual known cases number 75,000, with the majority of patients past 40 years of age, with only about 1 in 2,500 children up to the age of 15 having the disease.

Among other papers to be presented in the December issue will be:

- **Tracheostomy,** by Theodore J. Scharf, M.D., and Daniel E. Smith, M.D., Santa Fe and Albuquerque.

- **Persistency of the Patent Ductus Arteriosus in the Aged,** by Andrew M. Fekete, M.D., Norfolk.

- **The Inexorable Malignant Thymoma,** by Barbara Powell, M.D., and B. Shannon Gallaher, M.D., Augusta, Georgia.

- **The Natural History of Tuberculosis in the Human Body,** by J. Arthur Myers, M.D., Minneapolis.

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The Journal-Lancet

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Bacteremia Due to Gram-Negative Bacilli

Resume of Experiences in 303 Cases

WILLIAM J. MARTIN, M.D., and MARTIN C. McHENRY, M.D.
Rochester, Minnesota

The increasing incidence of bacteremia due to gram-negative bacilli has been pointed out by members of our group[1-7] and other investigators. Our review of the period 1940 through 1954[7] covered 137 cases, while that of 1955 through 1959[5] included 113. McCabe and Jackson[8] noted a fivefold increase in cases at the University of Illinois Research and Education Hospitals from 1951 to 1958. Finland and associates[9,10] described the rate as increasing more than 5 times from 1935 to 1957 at Boston City Hospital.

SELECTION OF CASES

The present review is based on 303 cases of bacteremia due to gram-negative bacilli, exclusive of cases of typhoid fever, brucellosis, bacterial endocarditis, and infections due to Streptobacillus moniliformis and Pasteurella organisms encountered at the Mayo Clinic from 1940 to mid-1961. Only those cases in which 2 or more positive blood cultures were obtained and in which clinical examination showed true bacteremia were included.

PATHOGENS, PATIENTS, PORTALS, AND PRECIPITANTS

Pathogens. Escherichia coli was the commonest of the gram-negative bacilli to invade the bloodstream and accounted for approximately half of these infections. E. coli and Aerobacter aerogenes, considered together as the coli-aerogenes group, were responsible in two-thirds of the cases. In recent years the incidence of Pseudomonas bacteremia has increased so that currently it has displaced Proteus bacteremia as the third most commonly encountered variety. Today, Pseudomonas causes bacteremia about 50% oftener than Proteus, and Proteus, about twice as frequently as Bacteroides. Organisms that are less commonly responsible include certain strains of Salmonella, Shigella, Haemophilus, Klebsiella, Paracolobactrum, Achromobacter, and Alcaligenes.

Pseudomonas organisms, although normal inhabitants of the intestinal tracts of some persons, are found also in water, on skin surfaces, and in the air. Consequently, these organisms have relatively free access to wounds, drugs, and medical instruments. The increased frequency of Pseudomonas infections may partly reflect resistance of the organisms to most antimicrobial agents allowing them to emerge as the predominating bacilli after eradication of more susceptible bacteria. Multiple other factors, such as the increased ability to prolong the life of patients with weakened defenses, with use of predisposing diagnostic and therapeutic procedures, contribute to the increased frequency of these infections.

The Bacteroidaceae are anaerobic, gram-negative, nonspore-forming bacilli, some of which

---

WILLIAM J. MARTIN *is with the section of medicine, and* MARTIN C. MC HENRY *is a fellow in medicine, Mayo Clinic and Mayo Foundation, Rochester.*

normally inhabit the nasopharynx and the gastrointestinal and female genital tracts. In one-third of our patients with Bacteroides bacteremia, the organisms were identified within forty-eight hours of the inoculation of blood cultures, but in the remainder, incubation times ranged from five to twenty days. Additional organisms, usually streptococci, were isolated simultaneously in about one-fifth of our cases of Bacteroides bacteremia. Since isolation of the organisms usually required prolonged incubation of anaerobic cultures, such blood cultures should be retained for three weeks or more before they are considered sterile, especially when bacteremia is strongly suspected despite negative aerobic cultures.[6]

Age and sex of patients. Bacteremia due to gram-negative bacilli affects men approximately twice as often as women. Seventy percent of our patients were 50 years of age or older. Women patients were an average of ten years younger than men, and only about 10% of either sex were less than 30 years old. In the group less than 30, notably susceptible patients were women in the postpartum state or undergoing septic abortion and children with malignant neoplasms or hematologic diseases.

Portals and precipitants. The portal of entry was the urinary tract in almost 50% of our cases, the biliary tract in 10%, the remainder of the gastrointestinal tract in 15%, and the female genital tract in 5%. In another 5%, other sources (skin, postoperative wounds, or respiratory tract) appeared responsible. In about 15% the portal of entry was undetermined or inapparent. Operation and instrumentation, especially of the genitourinary or gastrointestinal tracts, are outstanding factors preceding infection of the blood due to gram-negative bacilli. In approximately 50% of our cases these were the precipitants, two-thirds being genitourinary and one-third gastrointestinal.

The portals of entry for Bacteroides into the blood are virtually the converse of those of the usual bacteria, since the gastrointestinal tract was responsible in 70% of our cases and the genitourinary tract was indicated in only about 20%. In the latter cases the portal was more often genital than urinary. The nasopharynx, which is not a common portal, may serve as the entry for Bacteroides.

Pseudomonas has had a respiratory portal in patients who inhale contaminated "mist" solutions, but the skin (extensive burns), veins, and urinary system are more common portals. These portals share the possibility of exposure to contaminated instruments and medications.

In the cases in which a portal of entry was not evident, incidence of underlying hematologic disease was high.

Nidi of infection. Sites of infection from which bacteremia may originate are numerous and well known. Probably pyelonephritis, cholangitis, and conditions associated with varying degrees of peritonitis are the most common nidi of infection. Such nidi are often disturbed by surgical or manipulative procedures or are associated with other predisposing disease or treatment that alters host mechanisms involved in localizing infection.

Noninfectious diseases. Various noninfectious diseases may predispose to bacteremia directly or indirectly.

Advanced arteriosclerosis, which affected about 20% of our patients, may indirectly predispose to bacteremia because victims of strokes and those undergoing operations for abdominal aneurysms and the like frequently require urinary catheters. Infected peripheral gangrene is an additional portal.

Malignant neoplasms were present in approximately 10% of our patients. In more than three-fourths of these cases bacteremia appeared to be related to urologic procedures or gastrointestinal operations. Bacteremia also complicated chemotherapy and irradiation.

"Hematologic disease" as used herein refers only to leukemia, malignant lymphoma, multiple myeloma, aplastic anemia, or agranulocytosis. Such disorders were present in 15% of our patients. Bacteremia had developed in more than three-fourths of these patients without antecedent surgical treatment or instrumentation. Diminished resistance to infection in hematologic diseases may reflect (1) defects in immunologic response including abnormalities of gamma globulin (as in chronic lymphatic leukemia, lymphoma, and multiple myeloma), (2) inadequate leukocytic response (as in acute leukemia, chronic granulocytic leukemia, agranulocytosis, or aplasia), and (3) iatrogenic causes (adrenal steroids, antimetabolites, or irradiation).

Bacteremia associated with hematologic diseases is frequently due to Pseudomonas organisms and other bacteria such as Alcaligenes that do not commonly cause bacteremia. Polymicrobic infection is more frequent in patients with hematologic disease than in those not having such disorders.

Diabetes mellitus was noted in approximately 10% of our 303 patients. The portal for bacterial invasion of the blood in such patients is almost exclusively urinary. Complications of diabetes, such as coma, cesarean section, and amputation, which frequently require urinary catheterization, further predispose diabetic patients to bacteremia.[1]

Severe hepatic disease was associated with bacteremia in 5% of our patients. Persistent bacteremia in such patients may reflect reseeding of the blood with bacilli initially phagocytized by Kupffer's cells but not killed.[11] Infectious nidi in the biliary or urinary tract, especially if disturbed by operation or manipulation, appeared to be concerned in the genesis of the bacteremia in about two-thirds of our cases of severe hepatic disease.[3]

Precipitating or predisposing therapy. Various forms of therapy may precipitate or predispose to bacteremia. Of operations and manipulations, transurethral prostatic resection was the operation most frequently followed by bacteremia due to gram-negative bacilli, especially that due to coli-aerogenes organisms in our series. Cystoscopy was next in frequency. Among operative procedures on the gastrointestinal tract, the 3 most common sites in order of descending incidence were: biliary tract, intestines, and stomach. Pseudomonas may invade the bloodstream when these organisms have contaminated a heart-lung machine, hemodialysis apparatus, and the like. Fortunately, there were no cases of bacteremia resulting from infusion or transfusion in our series.

That antibacterial therapy may disturb the normal bacterial flora is well known. Various workers[12–15] have noted supervening infection due to gram-negative bacilli after antimicrobial therapy. In two-thirds of our cases in which bacteremia apparently was related to antecedent antimicrobial therapy, the infection was due to either Pseudomonas or A. aerogenes. Penicillin was most commonly responsible for apparent depression of gram-positive elements of the flora and resulting overgrowth and invasion of the blood by gram-negative elements. In 20% of our patients, prior antibacterial therapy appeared to have been a factor in the genesis of the bacteremia.

Adrenal glucocorticoids in pharmacologic dosage had been employed in 15% of our cases for significant intervals preceding the onset of bacteremia; this percentage necessarily is restricted to those cases encountered during the period in which these drugs have been available. In most instances, the drugs have been given to control hematologic disease.

McCabe and Jackson[8] noted that prior administration of adrenal-cortical steroids increased the frequency of bacteremic shock and the fatality rate among their patients.

Antimetabolites were being given to 5% of our patients when bacteremia developed. As is true of adrenal glucocorticoids, the percentage is applicable only to the patients observed since these drugs have been available. These patients had either hematologic disease or malignant neoplasm. Bacteremia in patients who were receiving antimetabolites was commonly due to Pseudomonas.

Less than 5% of our patients had received radiation therapy, but all also had either hematologic disease or malignant neoplasm.

CLINICAL FEATURES

Ninety-eight percent of our patients had fever, usually of spiking nature ranging from 101° to 106° F. The onset of bacteremia was manifested by fever and chills in 60% of the patients. Bacteremic shock heralded the bloodstream infection in approximately 20% of the patients.

Although vomiting, abdominal distension, and diarrhea occurred, they often were related to the underlying disease. Diarrhea can be a manifestation of bacteremia in the absence of underlying intestinal disease.

Headache was a common symptom, although frank delirium and stupor were rare. When not due to underlying conditions like hepatic coma, severe sensorial changes appear to be more characteristic of prolonged and progressive bacteremic shock and often are a sign of poor prognosis. Sweating was common, and myalgia, hyperventilation, restlessness, and agitation also occurred as initial symptoms.

Leukocytosis with neutrophilia was usually present. Leukopenia and thrombocytopenia were notable exceptions to the usual leukocytosis in some cases of Pseudomonas bacteremia without any apparent underlying hematologic disease.

Mild anemia was common, but albuminuria, hematuria, and pyuria were usually dependent on the underlying disease.

Azotemia, hyperkalemia, and decrease in serum sodium, plasma chloride, and plasma carbon dioxide occurred, especially in patients having an episode of hypotension. Metabolic acidosis may largely reflect increased blood lactic levels (lactic acidosis).

Certain clinical features may arouse suspicion that the causative agent is Pseudomonas. One feature is the skin lesions, most commonly seen in the anogenital regions and axillae and referred to as ecthyma gangraenosum. They begin as macules or vesicles, become pustular, and eventually slough to form necrotic ulcers. Ten percent of our patients with Pseudomonas bacteremia had ecthymatous lesions. Another feature of Pseudomonas bacteremia is the concurrence of leukopenia, as occurred in 5% of our patients. At times, the leukopenia is associated with thrombocytopenia. This phenomenon has been referred to as "the paradox of Pseudomonas bacteremia" because Pseudomonas bacteremia, although it has a predilection for patients with underlying hematologic diseases, also occurs in patients without such underlying disease. When it does occur, hematologic findings may be a secondary manifestation of the infection. Petechiae, jaundice, and rarely bluish-green discoloration of the nail beds may characterize Pseudomonas bacteremia.

Diarrhea beginning before antibiotic therapy and terminating with recovery occurred in one-third of our patients with Bacteroides bacteremia. If diarrhea occurs in a bacteremic patient, Bacteroides and Salmonella should be considered, but patients with bacteremia due to other gram-negative bacilli may have diarrhea as well. In one-third of our patients whose infections were due to Bacteroides, foul-smelling exudates were noted, but the stale, putrid, butter-like, or cheesy odor said to be characteristic of Bacteroides was present in only 2.

An unexpected delay in clinical response to an appropriate antibacterial regimen should suggest a locus of suppuration.

When bacteremia complicates septic abortion, clostridial infection should be considered, but gram-negative bacilli commonly are responsible. Previously obtained smears and cultures of the cervix may aid in this distinction before reports of blood cultures.

COMPLICATIONS

Bacteremic shock. This complication developed in 59 patients in our series. Vascular collapse associated with bacteremia may not be detected because the usual manifestations of shock are frequently obscured by warm skin, pounding pulse, and fever. Hypotension may be the only early sign of this serious complication.

Metastatic suppuration. Surgical drainage was required for loci of suppuration in one-fourth of our patients having infection due to Bacteroides. However, Bacteroides organisms are not the sole cause of metastatic infections, since suppurative lesions that appeared to be secondary to the bacteremia developed in about 10% of our 303 cases. Such metastatic suppuration may take the form of abscesses of the liver, lung, and kidney.

Superinfection. In 5% of our cases, gram-positive coccal infections developed after control of the original infection. These included enterocolitis, bacteremia, pneumonia, pyelonephritis, and parotitis. The offending organism usually was Staphylococcus aureus, but Streptococcus faecalis was causative in 2 cases. Approximately one-fourth of these superinfections proved fatal, but malignant neoplasms, hematologic disease, and other underlying processes appeared to predispose these patients to death.

THERAPEUTIC CONSIDERATIONS

Knowledge of the location of a primary nidus of infection, the existence of an underlying predisposing disease, and any prior therapy may suggest that gram-negative bacilli probably are responsible for a given case of bacteremia. Such information may allow initiation of more reasonable antibacterial therapy until definitive microbiologic data are forthcoming.

Some principles of management of patients having bacteremia are as follows: (1) close scrutiny of likely victims since prompt detection and treatment considerably decrease the mortality rate, (2) procurement of blood for adequate microbiologic study, (3) initiation of empiric treatment if the condition of the patient warrants, (4) reevaluation if results of cultures and in vitro bacterial susceptibility tests later indicate a poor choice of antimicrobial regimen but continuation of the empiric regimen if the patient is doing well, (5) administration of the drug or drugs in adequate dosage for a sufficient time, and (6) correction of any condition predisposing to the infection or complicating it. Combined antibiotic therapy with a tetracycline and streptomycin or chloramphenicol and kanamycin has been the regimen employed most frequently in our empiric management of bacteremia due to gram-negative bacilli. When the patient has not made satisfactory progress on a given regimen for twelve to twenty-four hours and the results of microbiologic studies remain unreported, the regimen is changed empirically. In such cases, in addition to the 2 regimens mentioned, polymyxin B or colistin may be considered.

Use of this rationale and these forms of therapy in the majority of our cases has given an overall recovery rate of 73%.

RESULTS RELATED TO IN VITRO SUSCEPTIBILITY TESTS

For the most part, in vitro susceptibility of the organisms to various antibiotics has only retrospective value in the management of bacteremia due to gram-negative bacilli because therapy is initiated empirically before such findings are available and ordinarily is not changed if the patient is doing well. To postpone therapy until the results of in vitro susceptibility tests are available would mean a delay of twenty-four to forty-eight hours and an increase of mortality.

The in vitro susceptibilities of gram-negative bacilli to chloramphenicol generally parallel those of tetracycline; only rarely will the pressure of the clinical situation allow one to take advantage of the differences between the 2 drugs. Substitution of one drug for the other usually is done empirically before in vitro susceptibilities are determined. Coli-aerogenes organisms frequently are sensitive to kanamycin on in vitro testing, but often strains of Proteus and Pseudomonas are resistant. Coli-aerogenes organisms are also frequently sensitive in vitro to the action of polymyxin B and colistin, but Proteus organisms are commonly resistant. The following data on in vitro bacterial susceptibilities deal mainly with tetracycline and streptomycin because these drugs have had the longest and most consistent usage in these infections.

Bacterial susceptibility tests were performed by the tube-broth or cup-plate dilution methods. Organisms were considered resistant when more than 20μg. of streptomycin, chloramphenicol, and polymyxin B or more than 10μg. of kanamycin and tetracycline were required to eradicate them in vitro. The following in vitro sensitivity data apply only to the microbes isolated from the 166 cases studied since 1955.

Seventy percent of the strains of E. coli were sensitive to streptomycin, and 75% were sensitive to tetracycline. Only 20% were resistant to both drugs. In cases in which the organism was sensitive to 1 of these 2 antibiotics and when either that antibiotic or both had been given to the patient, the mortality rate was 30%. When the organism was sensitive to both antibiotics and the patient had been given both agents, the mortality rate was 7%. When the organism was resistant to both antibiotics and the patient had been treated with both agents, the mortality rate was 70%. Those patients who died while receiving drugs to which the bacillus was resistant had fulminating infections that ended in death before in vitro susceptibilities could be determined. The overall mortality in our cases of bacteremia due to E. coli was 25%; in more than half of these cases, combined therapy (tetracycline-streptomycin or chloramphenicol-kanamycin) was used.

Only 40% of strains of A. aerogenes were sensitive to streptomycin, and 20% were sensitive to tetracycline. There were no deaths in cases in which the organism was sensitive to 1 of the 2 drugs and either or both antibiotics were given. Also, no deaths occurred in the few cases in which the organism was sensitive to both drugs and tetracycline-streptomycin therapy had been given. When the organism resisted both antibiotics and the patient had received both drugs, the mortality rate was 35%. In almost two-thirds of our cases combined therapy was used. The overall mortality rate from A. aerogenes bacteremia was 20%, but the rate has gradually increased from approximately 15% ten years ago to nearly 30% in the last five years. The majority of deaths in the group having resistant infections occurred before results of in vitro tests were reported and, in most patients, underlying diseases appeared to make recovery impossible.

Only 20% of the strains of Proteus were sensitive to streptomycin, and 10% were sensitive to tetracycline. When the organism was sensitive to tetracycline or streptomycin and the patient had been given the appropriate drug or both drugs, the mortality rate was 20%. When the organism was sensitive to both drugs and the patient had been so treated, the mortality rate was 10%. In cases of bacteremia due to Proteus resistant to both drugs and so treated, there was a mortality rate of 25%. Almost three-fourths of our patients with Proteus bacteremia received combined therapy; the overall mortality rate was 20%. If the patient did not have an underlying disease that caused death, recovery ensued on tetracycline-streptomycin therapy, regardless of the in vitro findings.

In vitro susceptibility was demonstrated to polymyxin B by all strains of Pseudomonas tested. In cases of Pseudomonas bacteremia and advanced neoplastic, hematologic, or renal disease, our experiences corroborate those of other investigators in that no form of current antimicrobial therapy appears capable of preventing death. In some of our cases of Pseudomonas bacteremia unassociated with an intrinsically lethal underlying disease, tetracycline-streptomycin therapy that was started empirically after blood was obtained for culture was successful. However, the majority of such patients received polymyxin B, and a small minority received colistin. The mortality rate among patients without associated disease of lethal potentiality was 25%. When all cases of Pseudomonas bacteremia are included, that is, those with and without any intrinsically lethal associated disease, the mortality rate was 55%. Ten years ago the overall mortality rate was 45%, but during the last five years it has risen to 65%. This rise appears to reflect the larger number of patients with underlying diseases of lethal potential who are being kept alive longer in recent years. The number of patients who have Pseudomonas bacteremia in the absence of such underlying disease has remained constant, and the mortality rate has not fluctuated significantly.

In vitro susceptibility was demonstrated to the tetracyclines and chloramphenicol by all Bacteroides organisms tested. After treatment with tetracycline alone, or with a tetracycline and streptomycin, the overall mortality in our cases of Bacteroides bacteremia was 25%. We believe our experience warrants the conclusion that tetracycline as a single agent suffices in patients with Bacteroides bacteremia and that conjoint streptomycin is unnecessary.

In vitro resistance to streptomycin was demonstrated by 80% of the strains of Salmonella. In all cases these organisms were susceptible to either tetracycline or chloramphenicol.

Administration of tetracycline or chloramphenicol without conjoint use of streptomycin or kanamycin probably is also sufficient in cases of Salmonella bacteremia.

Combined therapy has been used for our patients more frequently than a single drug for bacteremias due to coli-aerogenes and Proteus organisms. When combined therapy is begun empirically, one can switch to polymyxin B or colistin if reports of cultures indicate that Pseudomonas organisms are responsible, or one can discontinue use of streptomycin or kanamycin if Bacteroides or Salmonella is present. We have not accumulated sufficient data concerning bacteremia due to less commonly encountered gram-negative bacilli, such as Alcaligenes faecalis and Achromobacter, to provide us with precise therapeutic directions, but for the most part we have continued combined therapy when it has been begun empirically. In cases in which combined therapy has been employed during the last two years, approximately 80% have received both tetracycline and streptomycin, and most of the remaining patients have received chloramphenicol and kanamycin; only a few have received tetracycline and kanamycin.

It is impossible to restrict an analysis of results to drug versus microbe. The outstanding obstacle to such a pursuit is the matter of associated or underlying conditions. The importance of these conditions becomes apparent when one notes that the mortality rate among patients with an intrinsically lethal disease exceeded 50%, while it varied from 10 to 25% in patients without such disease.

ANTIBACTERIAL REGIMENS

On receipt of reports of positive blood cultures or after blood has been obtained for culture from patients who appear to have gram-negative bacteremia, 500 to 750 mg. of a tetracycline is given by mouth every six hours if circulatory collapse is not so severe that it prevents intestinal absorption of the drug. If staphylococci are present (furunculosis) or if superinfection with them seems especially likely, chloramphenicol instead of tetracycline may be given orally in amounts of 0.5 to 1 gm. every four hours. Chloramphenicol may be substituted also when the response to a twelve- to twenty-four-hour trial of tetracycline has been inadequate or later if in vitro data indicate greater susceptibility to chloramphenicol and the response to the tetracycline has continued to be poor. If circulatory collapse appears too severe to allow intestinal absorption, 500 mg. of a tetracycline is given intravenously every eight to twelve hours. Alternatively, chloramphenicol can be given intravenously in similar amounts every six to eight hours.

Although streptomycin usually is given conjointly with the tetracycline, kanamycin may be substituted when a staphylococcal coinfection seems likely, or either kanamycin or polymyxin B may be substituted when the therapeutic response is inadequate. In addition to its effect against Pseudomonas organisms, polymyxin B occasionally has proved efficacious in some infections due to other bacilli such as coli-aerogenes organisms. A dose of up to 1 gm. of streptomycin or 0.75 gm. of kanamycin if dictated by associated staphylococcal infection or refractoriness is given intramuscularly every twelve hours. When polymyxin B is used, a maximal dose of 50 mg. is given intramuscularly every six hours. If renal function is impaired, less than the usual amount of streptomycin, kanamycin, or polymyxin B is given in an attempt to prevent accumulation in the blood and consequent enhanced toxicity.

Advantages of combined antibiotic therapy. Empiric administration of streptomycin and a tetracycline (or chloramphenicol and kanamycin) appears preferable because identification of bacteria and results of susceptibility tests are not available for one or more days, and the broader antibiotic coverage of the combined therapy is desirable. Also, an effect may be enhanced by the bactericidal action of streptomycin (or kanamycin) since the tetracyclines (or chloramphenicol) alone are bacteriostatic. A tetracycline is preferred to chloramphenicol because the latter tends to depress the marrow and we prefer streptomycin to kanamycin, since kanamycin may be more likely to cause deafness.

Disadvantages of combined antibiotic therapy. These include the dual depressive effect on the gram-negative elements of the flora, thereby enhancing superinfection. However, periodic microbiologic study of the sputum and stools during therapy may reveal changes in the flora and impending superinfection. Streptomycin, kanamycin, and polymyxin B are nephrotoxic; streptomycin and kanamycin also are ototoxic; and polymyxin B may cause cerebellar ataxia. Also, combined therapy entails parenteral injections.

Question of streptomycin. The danger of toxic effects from the use of streptomycin in maximal amounts of 2 gm. daily is lessened when the patient has normal renal function, since duration of treatment usually does not exceed two weeks. When renal function is less than normal, the dose of streptomycin is correspondingly reduced or eliminated. Prior use of ototoxic drugs, such as streptomycin, kanamycin, and vancomycin, may enhance the chance of an untoward otic reaction on future use of streptomycin, and this possibility should be considered when the drug is to be prescribed. In cases in which blood cultures are reported as growing certain organisms, such as Bacteroides and Salmonella, use of streptomycin is discontinued. Fear of toxicity should not completely interdict the use of streptomycin, but at the same time the drug should not be employed indiscriminately. Perhaps kanamycin should be used with greater caution since this drug appears more likely to cause deafness than streptomycin.

McCabe and Jackson[8] stated that a number of factors preclude any statistically meaningful evaluation of the effects of individual antibiotics on their patients. The variety of antibiotics used for their patients was so great that it was necessary to analyze combinations of antibiotics as a whole rather than by individual combinations. Among the combinations employed in their series only the combination of penicillin and streptomycin was specifically identified and, as would be expected, this regimen was not very effective. These investigators pointed out that their analysis does not indicate that a combination of antibiotics increasing therapeutic effectiveness could not possibly be selected.

In cases of bacteremia due to A. aerogenes and protei in which the organisms resist both tetracycline and streptomycin and recovery ensues after administration of that regimen, the recovery rate is considerably higher than that expected a priori. However, this "therapeutic paradox" does not appear applicable to those caused by E. coli.

The mortality rate in cases of E. coli bacteremia treated with tetracycline and streptomycin when the organism was resistant in vitro to both drugs was not considerably less than the incidence of deaths quoted for the infection in the preantimicrobial era.

Single antibiotic therapy. Occasionally, although empiric therapy is sufficient to prevent death, the response is incomplete; then microbiologic data may indicate use of a single agent. Single agents with possible application against certain gram-negative bacilli include (1) polymyxin B or colistin in Pseudomonas infections, (2) penicillin or novobiocin in P. mirabilis bacteremia, (3) chloramphenicol in salmonellosis, (4) chloramphenicol or sometimes erythromycin in Haemophilus infection, and (5) a tetracycline in Bacteroides infections. Therapy with a single agent was possible in about one-third of our cases.

Antibacterial agents of potential application. Ampicillin (Polycillin), a semisynthetic orally administered agent, is being investigated in infections due to strains of E. coli, Salmonella, and Proteus. The drug is ineffective against Pseudomonas and Klebsiella organisms.

Cephalothin (Keflin), a cephalosporin C derivative, has efficacy against many gram-negative bacilli. Cephalothin is poorly absorbed from the gastrointestinal tract and must be given intramuscularly for systemic effect.

Nalidixic acid (NegGram), a naphthyridine derivative, when given intravenously in amounts of 0.5 to 1 gm. several times daily, has been suggested for Proteus bacteremia.

Gentamicin (Garymycin) resembles neomycin in its spectrum and toxicity. For systemic effect it is given intramuscularly. It is said to be more effective than neomycin or kanamycin against strains of Pseudomonas.

Duration of therapy. As a generalization, antibacterial therapy of bacteremia due to gram-negative bacilli should be continued until the patient has been afebrile at least seventy-two hours and 3 successive blood cultures have been negative. However, therapeutic control of Bacteroides bacteremia may require more time than control of other gram-negative bacillary infections of the blood does.

Therapy of polymicrobic bacteremia. As noted previously, polymicrobic infections occur not infrequently in Bacteroides bacteremia. Patients with hematologic diseases are especially predisposed to polymicrobic bacteremia. In treatment of polymicrobic bacteremia, several drugs may be given simultaneously, for example, tetracycline in Bacteroides infections and, concomitantly, penicillin and streptomycin against an enterococcus. The use of multiple agents is unnecessary in all cases and also may increase bacterial resistance more than if the bacteremias were treated with a minimum number of antibacterial drugs. Ampicillin and cephalothin may have special application in future cases of polymicrobic bacteremia.

ADJUNCTIVE THERAPY

Supportive therapy. Pyrexia may be partially controlled by aspirin and cold sponges. Replacement of blood may be required. Defects in fluids and electrolytes may require correction; over-administration of fluids, especially saline solution during oliguria, can cause death from embarrassment of cardiac function or from pulmonary edema.

Surgical therapy. An operation may be required to drain a primary or metastatic site of infection. The gallbladder, postoperative wounds, obstructive uropathy, and other lesions may result in a nidus of infection from which the blood is reseeded with organisms, and nonsurgical treatment may prove inadequate. Bacteremia should be brought under control before subjecting the patient to the added stress of an operation, but occasionally bacteremia persists until the nidus has been attacked surgically. Metastatic suppuration requiring surgical attention is most likely to complicate bacteremia due to Bacteroides organisms but, as noted, occurs in infections due to other gram-negative bacilli.

Antishock therapy. Considerable controversy exists with regard to antishock regimens, but measures that are frequently employed will be mentioned.

Vasopressors have been used to restore circulation before ischemia has damaged the kidneys and produced renal shutdown. A current question is whether vasodilators rather than vasopressors should be used.

If a Y-tube apparatus is used to deliver vasopressor drugs intravenously, their administration can be discontinued periodically so that only a minimum is given but the solution remains immediately available if hypotension recurs. Similar titration is not possible with subcutaneous or intramuscular administration of vasopressors. It is unnecessary to raise the systolic blood pressure to more than 100 mm. of mercury in a previously normotensive patient.

Metaraminol bitartrate (Aramine) is said to be less likely than l-norepinephrine (l-Arterenol) to result in dependence on withdrawal and more likely to promote strong renal blood flow. However, use of l-norepinephrine has not been completely displaced by metaraminol, despite these comparative advantages of metaraminol and the disadvantage that l-norepinephrine is more likely to cause tissue necrosis on extravasation. This is because l-norepinephrine will maintain the blood pressure of patients who are refractory to metaraminol.

Recommended initial doses for intramuscular or subcutaneous administration of metaraminol are 2 to 10 mg. (0.2 to 1 ml.). Doses for intravenous infusion vary from 15 to 100 mg. (1.5 to 10 ml.) given in 500 to 1,000 ml. of fluid. As with other vasopressors, injection of metaraminol into areas of arterial insufficiency should be avoided, and the drug should not be used in conjunction with cyclopropane anesthesia because of the danger of precipitating ventricular fibrillation.

L-norepinephrine is given intravenously in increments of 4 ml. of a 0.2% solution in 1,000 ml. of 5% dextrose in distilled water at a rate sufficient to maintain the blood pressure at the desired level. More than a dozen ampules per day have been given to patients who remain hypotensive.

The site of infusion of solutions containing l-norepinephrine and the course of the vein infused should be inspected frequently for evidence of extravasation such as a hard, cold blanched area of skin; use of veins of the hand should be avoided. If ischemia is noted, necrosis may be prevented or minimized by discontinuing the infusion promptly and infiltrating the area with 5 mg. of adrenergic blocking agents, such as phentolamine or piperoxan hydrochloride. Protection against necrosis of the skin after extravasation of l-norepinephrine is said by some investigators to follow addition of 5 to 10 mg. of phentolamine to each liter of solution containing the agent.

Angiotensin amide has given encouraging preliminary results in maintaining the patient's blood pressure during an episode of bacteremic shock. Although angiotensin has been given intramuscularly and subcutaneously without resulting necrosis of tissue, it is usually given by slow intravenous drip. A vial of angiotensin contains 2.5 mg. of the drug, and 1 to 4 vials may be added to 500 to 1,000 ml. of fluid. As many as 10 vials have been given in a twenty-four-hour period. The rate of intravenous flow is regulated so that 1 to 10 μg. are given per minute, with the usual amount being 3 to 5 μg.; however, considerably larger amounts have been given in desperate situations. Apparently, certain patients who do not respond well to l-norepinephrine respond to angiotensin, and since the converse also has occurred, a trial of both drugs may be required at times.

Proponents of the use of sympathetic (adrenergic) blocking agents point out that findings such as pallor, sweating, and tachycardia are signs of vasoconstriction and overactivity of the sympathetic nervous system. They theorize that dilation of blood vessels, rather than further constriction by vasopressors, is required to promote blood flow to vital organs and hence to combat the hemodynamic abnormalities of shock. Phenoxybenzamine (Dibenzyline) in amounts of 1 mg. per kilogram of body weight, administered by slow intravenous drip, has been recommended in this regard.[16]

Oxygen therapy might counteract tissue anoxia resulting from the reduced arterial blood flow, but the logic of its use has been disputed.

Elevation of the foot of the bed, application of an abdominal binder, and bandaging of the lower extremities are designed to increase venous return to the heart, but there are no exact data indicating that these measures are of substantial benefit.

If hypothermia[17] is not used, the patient may be kept comfortably warm without overheating. Overheating may induce dilation of superficial vessels and further increase the capacity of the vascular bed.

Mannitol administered intravenously has been said to be beneficial in some patients in the initial phase of renal shutdown.

Hemodialysis has contributed significantly to maintaining life and reducing morbidity during the oliguric phase of renal shutdown and should not be reserved as a last desperate measure; its failure to prevent death may reflect belated use. Persistent oliguria may necessitate repeated use of hemodialysis.

Some investigators reported a favorable response to adrenal cortical steroids in cases of bacteremic shock despite the fact that these patients, even when moribund, show no abnormality of the secretory function of the adrenal gland.[18] McCabe and Jackson[8] concluded that steroids had an adverse effect on their patients. We have limited the administration of adrenal cortical steroids to those patients who had been receiving them before the occurrence of bacteremia and bacteremic shock. Also, we have not used blood or plasma in the definitive management of this complication in our patients.

PROGNOSTIC CONSIDERATIONS

The prognosis is considerably determined by such factors as the nature and severity of the initial lesion, presence of underlying disease, prior treatment, duration of infection before institution of a pertinent antibiotic regimen, and complications including bacteremic shock, metastatic infection, and superinfection.

Patients who recovered had the benefit of early diagnosis and treatment. Since the commonest precipitant of bacteremia due to gram-negative bacilli is some type of urethral manipulation, including catheterization, likely victims should be managed accordingly in order to assure the best outcome.

The majority of deaths in this series occurred in patients with serious associated conditions, and in at least 50% of fatal cases the associated condition was incurable and responsible for the death.

SUMMARY AND CONCLUSIONS

In approximately two-thirds of 303 cases of bacteremia due to gram-negative bacilli encountered at the Mayo Clinic from 1940 to mid-1961, the causative organism was coli-aerogenes, the portal of entry was genitourinary, the patients were men, and the age of the patients was 60 years or more. In about 50% of these cases an operative or manipulative procedure immediately preceded the infection; in about two-thirds of the cases in which such procedures had been employed, the operation or instrumentation had been on the genitourinary tract, and in about one-third it had been on the gastrointestinal tract. Although the coli-aerogenes group of organisms remains the most common cause of bacteremia due to gram-negative bacilli, the relative incidence of Pseudomonas bacteremia has increased, apparently because of the propensity of Pseudomonas to invade the blood of victims of terminal neoplastic, hemopoietic, and renal diseases.

With the increased ability to prolong life of seriously ill patients who have limited capacity to resist infection and the augmented use of medical regimens that alter or bypass defense mechanisms of the host, an expanding group of individuals susceptible or predisposed to such serious infections has evolved. Bacteremia occurred in only about 10% of our 303 cases in the absence of underlying disease, of therapy capable of altering host resistance to infection, or of precipitating operation or of instrumentation. In some cases there were multiple predisposing or precipitating factors.

Nidi of infection such as pyelonephritis and cholangitis frequently serve as the source from which bacteria invade the blood.

Noninfectious diseases which appear to directly or indirectly predispose to bacteremia include advanced arteriosclerosis, malignant neoplasms, certain hematologic diseases, diabetes mellitus, and cirrhosis.

Therapies predisposing to bacteremia include (1) operation on, or manipulation of, the genitourinary or gastrointestinal tracts, (2) radiation treatment, (3) administration of adrenal glucocorticoids, (4) antibacterial suppression of coccal members of the normal flora, and (5) hematotherapy and tumor therapy in the form of antimetabolites.

Promptness of detection and appropriate management of bacteremia are essential, especially in predisposed persons. In managing any patient with possible predisposing disease or treatment—especially a patient with fever who has disease of, or has had recent operation on, the urinary or gastrointestinal tract—one should be constantly aware of the possibility of bacteremia due to gram-negative bacilli.

In bacteremia due to gram-negative bacilli, failure to recognize bacteremic shock in its early stages and to initiate prompt appropriate treatment increases the mortality rate.

Seventy-three percent of the 303 patients in this series recovered. Our continued experiences in bacteremia due to gram-negative bacilli appear to corroborate the conclusion that, in general, combined treatment (tetracycline and streptomycin or chloramphenicol and kanamycin) is as effective as any other empiric regimen.

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Read at the Symposium on Infectious Diseases sponsored by the University of Kansas Medical School, September 20, 1963.

GLUCAGON HYDROCHLORIDE is most effective in the treatment of hypoglycemia in juvenile diabetic patients when the blood glucose concentration is less than 200 mg. per 100 ml. At higher levels, the response is more likely to be hypoglycemic, perhaps because of a lack of available glycogen in the liver. Glucagon hydrochloride or placebo was administered to juvenile diabetic patients on 74 occasions. Of 32 children with an initial glucose value of 200 mg. per 100 ml. or less, glucagon treatment caused a significant increase in glucose after twenty minutes, averaging 58 mg. in all but 1. Among 16 children with similar initial values who received placebo, the average alteration was 7.3 mg. When the initial blood glucose was greater than 200 mg., 9 of 18 children receiving glucagon showed a drop; at initial levels of 325 mg. or more, glucagon consistently diminished blood glucose.

DONNELL D. ETZWILER, M.D., St. Louis Park Medical Center and University of Minnesota, Minneapolis. Pediatrics 32:1002-1006, 1963.

Tuberculosis and Leprosy

Some Correlations in Retrospect

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It is pertinent in a series of articles dedicated to James J. Waring to recall an episode in the progress of tuberculosis research in which he played his usual gracious part.

In June 1937 the American Association for the Advancement of Science held its annual meeting in Denver, in the course of which, a symposium, organized by the association's section on medical sciences, was presented, under the imposing title "Tuberculosis and Leprosy: The Mycobacterial Diseases." Gathered for this event were most of our investigators of that day who had an interest in pathologic processes caused by mycobacteria. The papers given at the symposium were published the following year as volume I of the symposium series of the American Association for the Advancement of Science,[1] a minor classic now in a serial publication that ultimately included many outstanding scientific compilations.

Dr. Waring's relation to the symposium was indirect, but characteristically effective. He and Mrs. Waring entertained the group in attendance for the mycobacterial symposium at a reception at the Denver Country Club on June 21. This was only one of many occasions when the Warings, through their personal hospitality, promoted the success of a locally held national meeting. The gathering paved the way for future mycobacterial symposiums, and also encouraged a feeling of fellowship so important in cooperative enterprises in science.

Mrs. Henry Sewall of Denver invited the group for a social hour. Her husband, who had died less than a year before, was one of the stalwarts in tuberculosis studies, with an interest in mycobacteria in general. He had left the University of Michigan and moved to Colorado where for many years he was under Jim Waring's care. Before leaving Michigan he and Mrs. Sewall formed a close friendship with Frederick G. Novy, who was instructor in hygiene at Michigan when Sewall was professor of physiology. Novy was at the A.A.A.S. meeting, taking part as a discussant in the mycobacterial symposium. He was the country's leading expert on the respiratory metabolism of the tubercle bacillus, and also the teacher of some participants. He, along with the Warings, was at the Sewall reception.

The cordial hospitality of the Warings and Mrs. Sewall did much for the later success of the symposium. Other former Coloradoans among the participants were notably: Florence R. Sabin, Harry J. Corper, Max B. Lurie, and William H. Feldman. But most of the participants knew each other only through the colder media of scientific communication. The warmth of the Waring and Sewall receptions made friends of all those taking part, and added to the freedom of discussion that followed.

THE 1937 SYMPOSIUM ON TUBERCULOSIS AND LEPROSY

At that time a kinship among the mycobacterial diseases was recognized, just as today, but understanding of the factors in common was primitive by today's standards. The amount still to be learned today greatly exceeds, to be sure, what we have learned thus far, but the current accumulation has been creditable, and it is perhaps worthwhile to review some of the new knowledge in comparison with what was known when that memorable symposium was held.

The pathologic processes covered at the meeting included: tuberculosis in domestic animals

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and man, Johne's disease of cattle, tuberculosis of cold-blooded animals, and leprosy. The symposium was opened by the chairman of the committee on medical research of the National Tuberculosis Association, William Charles White. The author of this paper, who had a strong interest in mycobacteria at the time, closed it with an effort to summarize the facts brought out at the symposium and to set forth a concept of unity in mycobacterial nature and action.

Morphological characteristics of the tubercle bacillus were described by Morton C. Kahn and his associate J. F. Nonidez, who had done the best work, to date, on the reproduction of the bacillus. The results of exhaustive chemical studies on the bacillus and other acid-fast bacteria were reviewed in detail by R. J. Anderson, Michael Heidelberger, A. E. O. Menzel, and Florence B. Seibert, whose work is still dominant among studies of the lipids, carbohydrates and proteins of the tubercle bacillus, and its products. Max Lurie discussed immunological relationships, a field in which he has long excelled. His chief at the time, H. J. Corper, a student of mycobacteria for many years, reviewed characteristics in common among acid-fast bacteria. Florence R. Sabin of the Rockefeller Institute, a beloved and revered personage in the field, and claimed as their own by patriotic Coloradoans, outlined concepts of the pathogenesis of tuberculosis that she had formed on the basis of her studies of tissue reaction to purified chemical components of the bacillus.

Different phases of tuberculosis in animals were discussed by George W. Stiles, A. B. Crawford of the U. S. Department of Agriculture, and William H. Feldman, who was later to play a distinguished part in the discovery of a successful treatment for tuberculosis. Skin lesions in cattle, due to mycobacteria and complicating the tuberculin test, were discussed by Lyman L. Daines. Johne's disease, or paratuberculosis in cattle, was discussed by an eminent veterinary pathologist, William A. Hagan. Joseph D. Aronson, whose name has been attached to a number of acid-fast bacteria affecting cold-blooded animals, described tuberculosis in fish, frogs, snakes, turtles, alligators, and iguanas.

Current knowledge of the bacteriology of leprosy was reviewed by former pupils of Frederick Novy, Malcolm H. Soule and Earl B. McKinley. They were the discoverers of a mycobacterium, exceedingly difficult to grow in artificial culture, which they believed to be the etiologic agent of leprosy. Leprosy as a general problem in the United States was reviewed by George W. McCoy, longtime director of the Hygienic Laboratory and its successor, the National Institute of Health of the U.S. Public Health Service. The pathology of leprosy, the subject of heredity in the disease, and institutional segregation in its treatment, were covered by S. H. Black, Ralph Hopkins, and H. E. Hasseltine, respectively, experts in these fields at the one United States institution devoted to leprosy—the United States Marine Hospital at Carville, Louisiana. Salient features in the epidemiology of leprosy were outlined by the eminent general epidemiologist James A. Doull. He later made leprosy, and in particular its epidemiology, his life work.

MYCOBACTERIAL DISEASES AND THE UNCLASSIFIED MYCOBACTERIA

It would not be profitable to review in detail the knowledge in this field twenty-seven years ago. It is worthwhile, however, to note that much has been added to knowledge of the chemistry of the mycobacteria and their products and, thanks to the introduction of the electron microscope, to knowledge of the structure of the tubercle bacillus, the leprosy bacillus, and other mycobacteria. The subject of constitutional resistance to tuberculosis, and its importance in relation to acquired immunity, has been brought into sharp focus by Lurie. Tuberculosis in cattle has become much less of a problem than in 1937. This is due, in large measure, to the tuberculin reaction in cattle, which was discussed in detail at the 1937 symposium. As a result of many factors, including control of sources of infection and specific effective chemotherapy, tuberculosis in man has also declined greatly as a medical, social, and public health problem.

It may be of specific interest, however, to call attention to advances in knowledge of mycobacteria and mycobacterial disease, with special reference to the problem of leprosy. There is good reason to believe that recently acquired knowledge of factors concerned in the growth of other mycobacteria will aid in solving the riddle of artificial cultivation of the mycobacteria of leprosy, which are present in enormous numbers in characterisic lesions of the disease, but thus far have defied efforts to grow them in artificial culture. Cultivation of the tubercle bacillus on artificial media made possible great advances in the understanding and treatment of tuberculosis. Inability to cultivate the leprosy bacillus, on the other hand, has prevented similar advances, and held back the control of this equally devastating disease. Yet, as intimated above, recent discoveries in the field suggest that possibly the needed information is just "around the corner."

It would be useful to set forth a detailed picture of current knowledge of mycobacteria, a large proportion of which fall in the motley array designated as "atypical," "anonymous," or "unclassified." Fortunately this has been done in a number of reviews that are readily available.[2,3,4] Particularly noteworthy is an article by H. C. Sweany and colleagues,[5] which appeared in February 1964 in the current James J. Waring series in The Journal-Lancet, entitled "Variations in mycobacteria related intimately or remotely to the disease tuberculosis." In that paper, as well as others cited, the classification of pathogenic and nonpathogenic mycobacteria, as defined by E. H. Runyon, is outlined in some detail.*

It made a framework, admittedly still imperfect, for the baffling pulmonary and cutaneous pathogenic mycobacterial processes in man, and a great variety of "leprosy-like" diseases in birds, mammals, and cold-blooded species. Research within this framework has changed profoundly the complacent and traditional picture of mycobacterial disease that had pervaded classification for years.

Among the mycobacterial diseases of man that have aroused special interest lately are those (in Runyon's Groups I and III) due to the "yellow bacillus" of Pollak and Buhler (Mycobacterium kansasii,) the cutaneous swimming pool granulomatous, and sometimes very severe ulcerating lesions caused by the imperfectly differentiated M. balnei, M. ulcerans, and M. fortuitum, and a variety of pulmonary lesions seen in considerable number some years ago at Battey State Hospital in Georgia, in which a type of bacillus since known as the "Battey bacillus" is commonly recognized.

At present, in spite of valiant efforts to establish these various pathogenic mycobacteria in a tight classification, exceptions to the rule are as common as uniformity. The general feeling is that we are in an early stage of classification that will ultimately be of far greater complexity.

In fact, a widely prevalent view, elaborated by Carroll Palmer and associates, is that slight mycobacterial infections are ubiquitous, or even universal, in some parts of the country. These infections lead to skin sensitization, characterized by cross allergic reactivity, with the specific proteins of the tubercle bacillus, and therefore cloud interpretation of the tuberculin test in those localities.

APPLICATION TO SPECIAL PROBLEM OF LEPROSY

So much attention would not have to be given to these pathogenic mycobacterial processes were it not for the fact that mycobacterial diseases, readily amenable to experimental study, may, sooner or later, turn up information needed for the difficult problem of leprosy. The fact that mycobacteria of human and animal disease, and nonpathogenic mycobacteria as well, keep breaking out of current classifications while preserving some basic elements in common leads inevitably to the concept of bacterial mutation with not infrequent production of related yet newly differentiated forms.

A stimulating hypothesis for leprosy has recently been put forward by Jacinto Convit and colleagues[6] of the Venezuelan Institute for Scientific Investigations, with respect to the apparently overwhelming parasitization of the human body by bacilli that cannot be cultivated as pathogenic entities, and the occasional cultivation from leprotic lesions of mycobacteria that are nonpathogenic for animals. Occasionally bacilli so isolated have been considered the possible etiologic agent of leprosy, but their capacity to grow rapidly and their inability to infect man or animals have led most critics to consider them as harmless mycobacterial saprophytes lying innocuously in leprotic lesions. However, Convit and associates, in the light of recent genetic knowledge, have suggested that the apparently harmless mycobacterial saprophytes may actually be cultivable mutants derived from strains of true leprosy bacilli, themselves noncultivable and of differing genetic deficiency, but capable, on occasion, of supplying each other with genetic factors needed to synthesize the enzymatic machinery needed for utilization of artificial culture media.

GROWTH OF MYCOBACTERIUM LEPRAE

Others, particularly J. H. Hanks and associates,[7] have continued with a sophisticated approach to the problem of cultivation, using as prototypes several strains of mycobacteria that are difficult to cultivate, but which will grow in artificial culture if a substance carried in mycobacteria, designated "mycobactin," is added to the culture medium. This procedure, so successful with Johne's bacillus, and with an acid-fast microorganism infecting wood pigeons, still offers hope in the cultivation of true leprosy bacilli and the bacillus of mouse leprosy. Facts of importance are continually being brought to light. In England, Rees and associates,[8] and others elsewhere, have had some success with culture of such bacilli in tissue cells. One of Hanks' colleagues, N. E. Morrison,[7] has been able to circumvent the mycobactin requirement of mycobactin-dependent microorganisms by changing the availability of oxygen for metabolism. In these and related experiments it has become evident that a temperature lower than the usual incubator temperature and a concentration of carbon dioxide higher than that prevalent in ordinary air are favorable influences. Leads related to the permeability of the mycobacterial wall also seem important.

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*That classification has been used widely in recent years so that a history of its origins is not out of place. "In 1954 an increased interest in the problem of atypical tubercle bacilli as agents of disease in man was manifested by clinical and laboratory investigators throughout the country. Since the incidence of cases was too low for one institution to collect and study adequately, a cooperative investigation was recommended by the laboratory subcommittee (of the Committee on Medical Research of the National Tuberculosis Association). The study was undertaken jointly by the Veterans Administration and the American Trudeau Society. Preliminary costs were borne by the general (NTA) medical research budget. In the 1955-1956 fiscal year a grant was awarded to Ernest H. Runyon, Veterans Administration, Sunmount, New York, to centralize the investigation." (From Cameron, V. C., and Long, E. R., Tuberculosis Medical Research. National Tuberculosis Association, 1904-1955, New York, N. Y., 1961). Later Runyon's investigations were widely supported and formed the basis for further work.

All this is reminiscent of views expressed by Soule and McKinley on the basis of their studies in the 1937 symposium. Sparse growth of "leprosy bacilli" which they reported was obtained only in atmospheres enriched with oxygen and carbon dioxide, a procedure in which they followed precedents established by their teacher, Frederick Novy. Their early experiments have not had substantial confirmation, but they remain a haunting enigma of possible continuing significance in the history of leprosy research.

In the 1937 symposium little could be said on the subject of transmission of the disease, except to emphasize the failures that have occurred over nearly a century in attempts to infect animals with leprous tissues. Soule and McKinley reported limited success through the cutaneous inoculation of monkeys. This too has failed of accepted confirmation.

EXPERIMENTS ON TRANSMISSION OF LEPROSY TO ANIMALS

At last, however, some universally admitted success has been achieved in this field. In America, using emulsions of leprotic tissues, C. H. Binford[9] has been able to induce lesions in the ears of hamsters, which display nerve involvement resembling that in leprosy. In several publications he has emphasized the importance of injecting the cooler parts of the body and maintaining observation for many months. C. C. Shepard,[10] by a unique method, has induced lesions in mice which can be carried in these animals serially over long periods. He and his associates have obtained small infiltrations, showing multiplication of injected bacilli from leprosy lesions in the footpads of mice. This achievement is now almost universally conceded to represent genuine transmission of leprosy infection from man to animals. The lesions develop very slowly and remain small but are of sufficient reproducibility and uniformity to permit use of the footpad method for studies of chemotherapy in leprosy. These studies have represented the most striking advance in experimental studies of leprosy since the 1937 symposium.[11]

PATHOLOGY OF LEPROSY

In the 1937 symposium the pathology of leprosy was discussed in terms quite different from those employed today. In the intervening years a stereotyped classification has developed separating leprotic lesions into 2 "polar" types—lepromatous and tuberculoid—with a number of less well defined forms between. The polar types appear to represent sharp differences in resistance to the infection. They themselves vary in character. A "histoid" variety of lepromatous leprosy has been described by Wade.[12] The modern classification has proved much more suitable for analysis of cases and their clinical course than that set forth by S. H. Black in the 1937 symposium, in which leprosy was classified roughly into cutaneous and neural types.

EPIDEMIOLOGY AND CONTROL OF LEPROSY

Similarities in tuberculosis and leprosy research have long been conspicuous in the epidemiological and clinical fields, as well as that of laboratory study. It is of interest to note that the investigator who discussed the epidemiology of leprosy at the 1937 symposium, the late James A. Doull, was a leader in similar research through almost all of the intervening years. The developments since that time have been in extent and precision rather than in the formation of new concepts. In the 1937 symposium Doull said of leprosy: "The disease resembles tuberculosis in that the chief sources of infection are open cases which may remain infective for a long period of time, and also in that the first infection, at least, occurs in childhood. Certain individuals also, as in tuberculosis, are infected but develop only minimal lesions. It is quite within the bounds of possibility, were a test comparable to the tuberculin test available in leprosy, that a much higher proportion of individuals in contact with leprosy might be shown to be infected."

Actually, not one but two test reactions in the general field have come into wide use in the intervening years. The Mitsuda reaction (first described in Japan in 1919) is a typical "late reaction," and the Fernández reaction, reported by

J. M. M. Fernández in Argentina in 1940, is an early tuberculin-like response, indicative of infection in persons giving clinical evidence of some resistance to the disease.

Epidemiologic methods employed in the two diseases are quite similar, with studies of "contacts" as sources of infection, "attack rates," and control of the "positive" case through public health procedures. In regions where such control is practiced faithfully, as in the state of Hawaii during the last thirty-five years, a notable reduction in the prevalence of leprosy has occurred.

Control today is by no means synonymous with "segregation," which has become a word of bad repute in more senses than one. In fact, in each disease there has been a widespread tendency to abandon, as old-fashioned, the rigorous isolation once practiced, which admittedly had much to do with the intervening decline in the prevalence of each disease. In the 1937 symposium the subject was discussed by H. E. Hasseltine of Carville, under the title "Institutional Segregation in Leprosy." He opened his remarks with the statement: "Segregation of lepers in some form is almost as old as leprosy itself." It may be noted that the word "leper" itself has fallen into heavy disfavor in recent years, because of its unjustified and probably quite mistaken connotation in scriptural references. The modern tendency is to treat victims of the authentic disease as "patients" and not as offenders against society.[13] Hasseltine discussed compulsory and voluntary segregation and institutional and home care. He credited much of the decline in prevalence and incidence of development of the disease to segregation in some form. Today increasing reliance is placed on treatment of the disease, rather than on its isolation.

CHEMOTHERAPY OF LEPROSY

The modern approach in the case of both tuberculosis and leprosy is to get away from old-time rigidity and try to control the diseases by educational and public health methods, with increasing use of the facilities and care available in general hospitals. The panel on epidemiology and control at the VIIIth International Congress on Leprology in Rio de Janeiro, in 1963,[14] deplored indiscriminate compulsory segregation in leprosy and advocated increasing dependence on public health practice, case finding, and adequate therapy.

The therapy of both tuberculosis and leprosy has undergone a radical change since 1937. The introduction of the sulfones in the late 1930's, and subsequent general employment of streptomycin and isoniazid, revolutionized the treatment of tuberculosis. The apparent etiologic similarity of tuberculosis and leprosy encouraged workers in the latter field to try the drugs that proved so effective in tuberculosis. Up to that time major dependence was placed on general measures. In his 1937 report Hasseltine said "Rest, good diet, and regular habits as to sleep, exercise, and recreation, play as great a role in the treatment of leprosy as in the treatment of tuberculosis."

Today these are almost vanished remedies in the therapy of each disease. The treatment of tuberculosis now rests solidly on chemotherapy, with some auxiliary service from surgery, and the same is true of leprosy. Strangely, the drugs that have proved most effective in leprosy are those that were discarded in the course of improvement of chemotherapy for tuberculosis. The drug of choice and standard remedy in leprosy is 4,4'-diamino-diphenyl sulfone, the chemical parent of the drugs Promin and Promizole, which had limited success in tuberculosis in the late 1930's.

Streptomycin and isoniazid seem less effective. Many drugs are under trial. The phenomenon of drug resistance, a problem in tuberculosis, is a problem in leprosy also. It will take much more research to explain all the similarities in tuberculosis and leprosy, including their chemotherapy and the overlapping antigenic phenomena, which were not in evidence in 1937, but are today known to be of great importance. It is clear that tuberculosis research and leprosy research have been mutually beneficial. It is clear, too, that advances in knowledge in one disease will be continually helpful in understanding the other.

SUMMARY

Advances in the understanding and control of tuberculosis and leprosy are discussed in a retrospective view of a symposium on the two diseases in 1937, in which knowledge then current was reviewed by experts in diverse fields. Since then much knowledge has accumulated, not only on the etiology, pathogenesis, therapy, and control of each of these diseases, but also on a number of other significant diseases due to mycobacteria. The study of these infections is currently affording leads for the difficult problem of isolation and cultivation of the infecting agent of leprosy, and for the equally hard problem of transmitting the disease to experimental animals.

Leprosy and tuberculosis are under control today by public health practice and chemotherapy. Segregation of leprosy patients, once prac-

ticed with rigidity, is giving way to surveillance through public health practice and drug treatment. The diseases are closely related in many ways, such as sharing of chemotherapeutic susceptibility and rather broad antigenic relationships among the components of the etiologic agents. The drug that is generally most effective in leprosy, 4,4'-diamino-diphenyl sulfone, played an important part in the early development of an effective chemotherapy of tuberculosis.

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NECROTIZING ANGIITIS may be primarily cutaneous or primarily systemic. With exposure to various drugs and chemicals increasing every year, these diseases may be becoming more common. The chronic cutaneous forms may be treated simply by rest, elevation of the extremities, and avoidance of exposure to drugs and chemicals. For fulminant systemic disease extensive steroid therapy is necessary. The symmetrical nonthrombocytopenic purpura affecting the dependent portions of the body in cutaneous angiitis may be diffuse or sharply localized to the vessels. The lesions are usually maculopapular petechial eruptions, bullous infarctive lesions, or chronic plaques. Noncutaneous manifestations commonly include mild arthralgia, michohematuria, eosinophilia, and elevated erythrocyte sedimentation rates. Widespread cutaneous reactions, particularly of the bullous-infarctive type, ulcerative or granulomatous lesions of the mouth, and hemorrhagic infarctive lesions of the fingers or toes are more serious manifestations. Systemic angiitis falls into 3 basic groups: true periarteritis nodosa, hypersensitivity angiitis, and granulomatous angiitis. Prognosis is poor with serious renal involvement, pulmonary infiltrative disease, and gastrointestinal hemorrhage. Systemic lesions may occur in association with cutaneous disease, usually before the appearance of skin lesions or simultaneously. Primary systemic disease almost always gives rise to skin lesions as well. The extent and seriousness of the condition is usually evident by the time the cutaneous manifestations occur. In all cases of necrotizing angiitis, histological examination shows vascular and perivascular infiltration of polymorphonuclear leukocytes with leukocytoclasia or nuclear dust. Necrotizing angiitis of the small blood vessels of the skin has been studied in 38 patients from 3 to 81 years of age. In some the disease had lasted as long as ten years.

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Fargo Clinic Series

The Secondary Hypoglycemia of Diabetes Mellitus

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Fargo

Of the various causes of spontaneous hypoglycemia, probably the two most common are functional hyperinsulinism (functional hypoglycemia) and the secondary hypoglycemia (stimulative hypoglycemia) associated with early or mild diabetes. The latter is the subject of this paper. The graph illustrates the differences in the glucose tolerance tests found in the two conditions. The essential differences[1] are:

Functional hyperinsulinism	*Mild diabetes with secondary hypoglycemia*
1. Fasting level normal	1. Fasting level normal or only slightly elevated
2. Peak of blood sugar not over 140	2. Peak of blood sugar over 160
3. Return to fasting level by two hours	3. Plateau-type curve with hyperglycemia beyond two hours
4. Hypoglycemia, usually with symptoms, at two to four hours	4. Hypoglycemia, usually with symptoms, at three to five hours

HISTORY AND PATHOLOGICAL PHYSIOLOGY

In 1924 Harris[2] discussed 2 patients in whom hypoglycemia was associated with early evidence of diabetes which he diagnosed as "potential diabetes." In 1953 Skillern and Rynearson[3] presented 2 similar cases with the same conclusion. In 1953 Allen[4] first emphasized the cause and effect relationship between this type of hypoglycemia and diabetes, pointing out that it precedes the classical symptoms of "frank diabetes" such as polydipsia, polyuria, and weight loss. In 1956 Seltzer and associates[1] first pointed out that these patients actually have diabetes at the time they have the hypoglycemia. They first presented specific criteria for diagnosis and differentiation of the two types of hypoglycemia as previously mentioned and presented 110 cases of secondary hypoglycemia associated with early diabetes. They postulated that (1) an early defect of diabetes mellitus is diminution in speed of mobilization of insulin in response to the stimulus of a rising blood sugar level, (2) in this phase of diabetes the capacity to produce insulin remains almost normal, and (3) the initial hyperglycemia affords a supernormal stimulus to the islets of Langerhans which then discharge an amount of insulin sufficient to produce transient hypoglycemia. In 1960 Yalow and Berson,[5] using an immunoassay for insulin and studying subjects with early maturity-onset diabetes undergoing standard glucose tolerance tests, gave support to the first postulate of Seltzer and associates by demonstrating that insulin concentration in the plasma reached its peak in nondiabetics in thirty to sixty minutes, whereas in the diabetic subjects peak concentration was not attained until two hours after glucose. They found the average maximum insulin concentration in the diabetics to significantly exceed the maximum insulin concentration in nondiabetics giving support to the second and third postulates. They also showed[6] that, when subjects were tested by repeated administration of glucose to a total of 250 gm., diabetics secreted more insulin than nondiabetics, demonstrating that the insulin reserve of the diabetic subjects was not depleted by the usual 100 gm. glucose tolerance test and that prolonged hyperglycemia could provide a supernormal response in insulin secretion corres-

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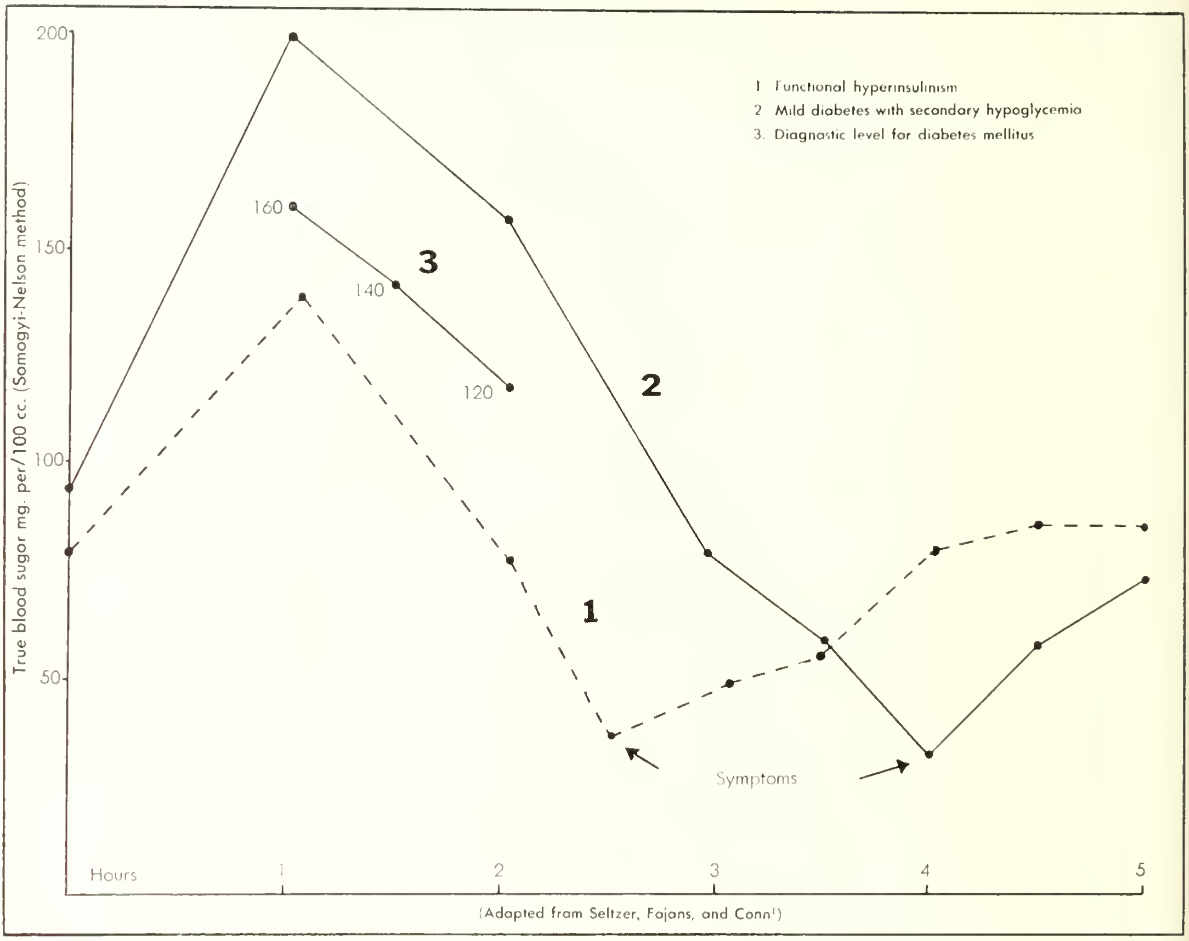

(Adapted from Seltzer, Fajans, and Conn[1])

ponding to the third postulate of Seltzer and associates. This work did not prove the actual insulin-secreting capacity of diabetics to be equal to nondiabetics, since the latter were not subjected to the same degree of hyperglycemia, but gave strong support to the view that they were at least nearly equal. It should be pointed out, however, that the diabetic subjects tested were adults with mild maturity-onset diabetes, none of whom had received insulin.

In 1962 Dube[7] reported mild diabetes and secondary hypoglycemia in a man who previously had had florid diabetes which had undergone a marked remission.

CASE REPORTS

The table illustrates our experience with 14 cases of secondary hypoglycemia associated with early diabetes mellitus. These were all patients with early maturity-onset diabetes which was not diagnosed before the actual tests presented in this table. Ages ranged from 20 to 55. Most of them were obese, 2 extremely so. Eight had a positive family history of diabetes. Four had very equivocal symptoms of diabetes in the usual sense but none had definite symptoms. Twelve gave a history of hypoglycemic symptoms, one of these of five years' duration. In 8 patients the fasting blood sugar was normal (not over 90 mgm. per 100 cc.). Of the remaining, the highest fasting blood sugar was 115 mg. percent. All had glucose tolerance curves which in the first two hours gave unequivocal evidence of diabetes mellitus. All had distinctly hypoglycemic levels at three, four, or five hours. In 11 patients the test resulted in symptoms similar to the hypoglycemic symptoms experienced by the patient before the test. The last column gives the clinical impression before the test held by the physician ordering the glucose tolerance test. Twelve of the 14 patients were relieved of their hypoglycemic symptoms by a diabetic diet.

Case 1. This obese, 43-year-old farmer was first seen September 2, 1953, on admission to St. Luke's Hospital with acute abdominal pain. The admitting diagnosis was acute cholecystitis and asthmatic bronchitis. Following the induction of anesthesia, tissue oxygenation became poor; therefore, a cholecystostomy was done rather than a cholecystectomy. After one week he was discharged in relatively good condition with the T tube in place and was given a weight reduction diet. After

Case No.	Clinic No.	Age	Sex	Weight	F.H. of D.M.	"Typical" symptoms of diabetes	Hypoglycemic symptoms	F	½	1	2	3	4	5	Symptoms with test	Impression before test
1	185058	43	M	215	0	0	+	82	200	249	220	181	—	50	0	Islet-cell tumor
2	215760	44	M	300	+	?	+	92	161	295	96	64	—	—	0	Diabetes(?)
Same patient				268				96	152	167	145	64	55	75	0	Labyrinthine vertigo(?) Hypoglycemia(?)
3	174687	42	F	162	+	?	+	85	215	218	120	170	56	73	+	Functional hypoglycemia
4	191417	47	F	102	0	0	+ 4½ yrs.	94	228	186	137	122	50	77	+	Menopause
5	27556	55	F	195	0	?	+ 5 yrs.	105	218	199	122	47	—	—	+	Diabetes
6	223305	20	F	113	+	0	+ 4 mos.	79	224	231	150	88	58	75	+	Hyperthyroidism
7	127809	25	M	160	+	0	0(?)	93	227	209	109	61	—	—	0	Diabetes(?)
Same patient				160		0	+	90	261	245	150	52	63	68	+	Diabetes
8	170464	46	M	154	0	0	?	106	212	267	116	35	66	—	+	Cardiac neurosis
9	179194	53	M	179	0	0	0	115	198	176	120	50	—	—	+	Diabetes
10	46375	23	M	339	+	0	+	90	156	170	144	88	53	65	+	Diabetes
11	240712	29	M	152	+	0	+	65	—	170	122	36	55	66	+	Neurosis(?) Functional hypoglycemia
12	226766	34	F	94	+	0	+	73	—	212	176	116	66	55	0	Islet-cell tumor
13	121931	38	F	140	0	?	+	69	—	205	123	96	83	50	+	Labyrinthitis
14	118378	54	F	150	+	0	+	76	—	160	155	118	43	45	+	Labyrinthine vertigo

three months he had lost no weight and stated that he almost went "crazy" if he did not eat frequently. He was readmitted to the hospital January 8, 1956, with a presumptive diagnosis of islet-cell tumor. The glucose tolerance as illustrated in the table was obtained, causing us to change our diagnosis to diabetes mellitus with secondary hypoglycemia. He was discharged January 12 and instructed in a diabetic diet of 140 gm. carbohydrate, 70 gm. protein, and 50 gm. fat, including small morning, afternoon, and bedtime lunches. At that time his weight was 215 lb. Thereafter, he was free of his previous episodes of weakness, shakiness, and uncontrollable hunger and was able to reduce his weight effectively so that by July 12, when he was readmitted to the hospital, his weight was 170 lb. He underwent a cholecystectomy and appendectomy without incident and was discharged in good condition.

Case 2. A 44-year-old farmer was first seen August 11, 1958, because of increasing obesity, umbilical hernia, cough, dyspnea with exertion, and fatigue. Further history revealed that for six years he had had episodes of unconsciousness lasting but a few minutes and preceded by dullness of vision for two to three minutes. After awaking he felt weak for two to three hours and afterward felt normal. Physical examination revealed weight, 308 lb.; blood pressure, 150/100; umbilical hernia; and striae on the lower abdomen. A glucose tolerance test was done which showed definite diabetes and mild hypoglycemia at the third hour but which did not reproduce the patient's symptoms. With a reducing diabetic diet he lost 40 lb. in the next few months. On December 15, 1958, he complained of episodes of vague vertigo and faintness coming on commonly at 3 to 5 P.M., with activity but not at rest. Another glucose tolerance test was obtained which again was a definitely diabetic curve but with the lowest blood sugar level at four hours. Again the test did not reproduce the patient's symptoms. When last seen dietary treatment had not been successful in relieving this patient's extremely ill-defined symptoms.

Case 3. A 42-year-old woman was first seen July 17, 1958, because of spells of weakness and faintness of two years' duration. These occurred on the average of once a day either at 11 A.M. or 4 P.M. and were promptly relieved by food. Physical examination was negative except for moderate obesity. A glucose tolerance test reproduced the patient's symptoms. Diabetic diet and weight reduction gave prompt and permanent relief of the hypoglycemic symptoms, although she has continued to complain of various symptoms related to fatigue and nervous tension.

Case 4. This 44-year-old woman was first seen in April 1956 because of recurrent spells of chilliness and perspiration. Physical examination was normal, and the symptoms were thought to be due to the menopausal syndrome. When seen three years later, she complained of weakness, faintness, and exhaustion of three years' duration. This would come in episodes approximately four hours after the preceding meal and was readily relieved by drinking sweetened orange juice. The symptoms were readily reproduced by a glucose tolerance test and were promptly relieved by a diabetic diet. At this time the patient had not been complaining of her chilliness and perspiration noted three years earlier, but we presume that those symptoms were also of hypoglycemic origin.

Case 5. This 55-year-old-woman was first seen July 6, 1959, because of slight vaginal discharge; occasional weak, shaky spells for five years; and slight, constant sensation of fatigue for six months. History revealed further that she had 6 children, most of whom weighed 9 to 10 lb. at birth and also had had 2 miscarriages. Because of her obstetrical history, it was felt that she probably had diabetes, and a three-hour glucose tolerance test was done. This showed evidence of diabetes and a marked hypoglycemia at three hours which reproduced the symptoms she had previously experienced. Diabetic diet relieved the symptoms completely, although she failed to adhere to the diet sufficiently well to lose weight.

Case 6. This 20-year-old girl was referred by a gynecologist whom she had consulted because of a recent pelvic pain. He found no pelvic abnormality and suspected that her pain had been due to a ruptured corpus luteum cyst. By coincidence her visit to his office was about 10:30 A.M. and while there she suffered one of her spells of weakness, shakiness, sweating, palpitation, and nervousness which had been occurring about twice weekly for the preceding four months. The physician noted these symptoms and on examination he noted a pulse of 104, a fine tremor of the fingers, and somewhat prominent eyes with a widened palpebral fissure. When she arrived at my office approximately one hour later the episode had subsided spontaneously, but she related that she had commonly brought about quicker relief with candy. She had a father and sister who were diabetic, and another sister had rather prominent eyes, but she had no relative with thyroid disease.

Physical examination was normal except for minimal widening of the palpebral fissure. A glucose tolerance test demonstrated the presence of diabetes and also caused the recurrence of the previously mentioned hypoglycemic symptoms at about the third hour. These symptoms were of only fifteen minutes' duration and subsided spontaneously. With a diabetic diet, her symptoms were permanently relieved. She subsequently married and went through a normal pregnancy three years after the onset of her diabetes. The diabetes was under excellent control throughout the pregnancy without the use of insulin.

Case 7. This 25-year-old man was first seen April 11, 1960. He stated that for four and a half months he had noted increasingly poor endurance. During the same time he had lost 18 to 20 lb. despite eating as much as ever and perhaps more. He had noted some prominence of the left eye for five months and during the same time had noted some blurring of vision after prolonged reading and soreness of the eyes. In addition he had noted some tremor, exertional dyspnea, palpitation, muscular weakness, increased perspiration, and heat intolerance. His father and several of his father's relatives had diabetes. On physical examination he appeared to be a slender, slightly thin young man who was not hyperkinetic but appeared warm and slightly stimulated. There was an exophthalmos of the left eye only, which an opthalmologist measured at 22 mm., whereas the right eye measured 17 mm. There was slight diffuse enlargement of the thyroid gland, slight loud M 1 on auscultation of the heart, and warm hands which displayed a moderate fine tremor. The skin throughout was warm and moist. Protein-bound iodine was 9.8 μg. percent, and radioactive iodine uptake was 55% in twenty-four hours. A glucose tolerance April 11 showed several abnormally high blood sugars but was not diagnostic of diabetes and did not cause hypoglycemic symptoms. After preparation with Lugol's solution, he underwent an uneventful bilateral subtotal thyroidectomy on April 29, 1960. He was advised to take Lugol's solution, 5 drops weekly, and desiccated thyroid, 2 grains daily, and to avoid sweets.

He returned June 17 complaining primarily of episodes of weakness, shakiness, perspiration, and hunger about 1 P.M. and on a few occasions about 9 A.M. These were readily relieved by eating. Physical examination showed the eyes to be the same. There was no suggestive evidence of thyrotoxicosis. A protein-bound iodine was 9.8 μg. percent. A glucose tolerance test showed unmistakable evidence of diabetes and caused rather marked hypoglycemic symptoms beginning at the third hour. These symptoms subsided spontaneously after about one hour. At that time he was advised to discontinue his Lugol's solution and increase the desiccated thyroid to 3 grains daily. He was advised to avoid sweets and take a substantial lunch between meals and bedtime. However, he declined our advice to follow a quantitative diabetic diet. He returned August 18 complaining of continued poor endurance and the same hypoglycemic symptoms about 4:30 P.M. daily. He had noted some palpitation for two weeks. Diplopia which had troubled him previously was much better. Examination showed the eyes to be the same and the pulse, 104. There was a small, palpable remnant of thyroid tissue. The skin was abnormally warm, oily, and moist. The heart had a loud apical first sound, and there was an equivocal tremor in the outstretched hand. Protein-bound iodine was 9.2 μg. percent, and a nonfasting blood sugar at 11:30 A.M. was 75 mg. percent. He was advised to reduce his thyroid dosage to 2 grains daily. Subsequently, it was thought that he was becoming more thyrotoxic, and the desiccated thyroid was discontinued. He was given a therapeutic dose of radioactive iodine elsewhere in January 1961. When last seen August 18, 1961, he felt well except for some soreness of the eyes. He was taking Lugol's solution, 10 drops daily, and 1 grain of desiccated thyroid daily. A glucose tolerance test again showed definite diabetes but did not cause hypoglycemic symptoms.

Case 8. This 46-year-old man consulted his physician December 1, 1959, because of heart consciousness. The main symptom was heaviness and fatigue in the arms. Also, he had noted a strange nervousness midmorning and midafternoon which he relieved by ingestion of wine which he kept in the desk at his office. This was becoming so frequent that he was becoming concerned about the possibility of becoming an alcoholic. Complete physical examination was normal. A glucose tolerance test showed diabetes mellitus plus a drop of the blood sugar to 35 mg. percent at three hours, reproducing the nervousness. The symptoms were relieved by a diabetic diet. In February 1960 it was thought that he was again having hypoglycemic symptoms. These improved with an increase in his midmeal lunches and then subsequently became worse with the use of tolbutamide. The latter was discontinued, and since that time he has been free of symptoms. His diabetes has been controlled, and he has avoided alcohol.

Case 9. This 52-year-old man had been seen on several occasions previously. He had been concerned about his heart and frequently complained to his doctor of vague chest distress, never particularly associated with exertion. Examinations always had been negative, and he had been advised merely to lose weight. He again consulted his doctor on January 25, 1960, stating that an insurance examination elsewhere a month previously had revealed high blood pressure. Physical examination was completely normal except for 1 microaneurysm in the temporal portion of the left optic fundus. Blood pressure was 132/86. A glucose tolerance test showed evidence of diabetes mellitus and, in addition, at three hours showed a drop of blood sugar to 50 mg. percent accompanied by shaking, hunger, and weakness lasting twenty minutes, after which it was relieved quickly by food. He had not previously had this particular symptom complex. He was advised to avoid sweets and reduce his weight further. In May 1961 he suffered an acute posterolateral myocardial infarction, and while he was in the hospital anticoagulants were started. In January 1962 he suffered a massive upper gastrointestinal hemorrhage, and the anticoagulants were discontinued. Stomach X-ray was negative except for a small diverticulum in the second portion of the duodenum. In August 1963 he began to complain of epigastric distress which had previously been fleeting but was now more persistent. A repeat stomach X-ray showed a gastric ulcer on the lesser curvature. Ulcer therapy was started. When last X-rayed September 10, 1962, a small ulcer was still visible, but it was smaller than before.

Case 10. This 23-year-old man was seen by me once only on November 2, 1960, in consultation with one of my associates. The main problem at the time was spells of faintness, weakness, and nervousness. He had had about a dozen of these over the preceding two months. They occurred in the late afternoon or late evening about bedtime but never right after the evening meal. He had a number of other symptoms which were not at all specific in nature. These were vague headaches, chest pains, with and without exertion, and vague muscular soreness. He had been markedly obese for many years but had reduced his weight 10 or 12 lb. by dieting in the preceding three weeks. A glucose tolerance test gave evidence of mild but definite diabetes, and also at the fourth hour it showed a drop of blood sugar to 53 mg. percent. This was accompanied by a subjective shaky sensation lasting about one hour, but the patient stated that he had never felt this particular symptom before, and it was unlike the previously mentioned symptoms. He was advised to follow a reducing diet, and by the summer of 1961 had his weight down to 288 lb. Thereafter, he regained weight and weighed over 300 lb. when last seen in July 1962. Nevertheless, he had been free of the previously mentioned symptoms for several months at that time. A nonfasting blood sugar in March 1962 was 87 mg. percent.

Case 11. This 29-year-old farmer was first seen in March 1961 because of episodes of feeling weak, faint, hot, sweaty, and hungry. These episodes had been coming for the last six months and occurred about twice weekly usually about 3 or 4 P.M. They were worse with nervous tension or exercise and were accompanied by some bloating and belching. He had been troubled with symptoms suggestive of gastritis since 1953. X-rays elsewhere had been negative, and he had been told that he had a "nervous stomach." Physical examination showed an alert, slightly tense young man who appeared very healthy. A glucose tolerance test showed mild diabetes mellitus and, in addition, showed abnormally low blood sugars from the third to the fifth hour. During the test beginning three and a half hours after ingestion of glucose he felt weak, faint, hot, sweaty, and hungry. This subsided without therapy in one hour. He was given a diabetic diet with midmeal lunches. He was not improved and was readmitted to the hospital September 10, 1961, for reevaluation. He was given a test with intravenous tolbutamide. Initial fasting blood sugar was 68 mg. percent, and forty-five minutes after the intravenous injection of 1 gm. of tolbutamide the blood sugar fell to a low of 40 mg. percent, at which time the patient again had his symptoms of warmth, sweating, and nervousness. Thereafter the blood sugar rose to 67 mg. percent one and a half hours after injection and 79 mg. percent at three hours. Thereafter he was kept fasting for a total of three days without untoward effect and without reproducing any of the previously mentioned symptoms. His final blood sugar after three days of fasting was 58 mg. percent. We felt that these studies had excluded organic hyperinsulinism. He was given a diabetic diet with very large midmeal lunches. Nevertheless, recent communication with his local physician indicates that he is doing as badly as ever.

Case 12. This 34-year-old woman was admitted to the hospital January 16, 1961, primarily for therapy of an acute nervous episode. Among other symptoms it was found that for several years she had experienced episodes of severe hunger associated with the sensation of panic, shaking, and sweating. These occurred most commonly at night and were relieved by ingestion of food. Physical examination was normal. Routine studies were normal. A glucose tolerance test showed evidence of diabetes mellitus and hypoglycemia of 55 mg. percent at five hours. However, this test did not produce any symptoms. She was given a diabetic diet and has had none of the previously mentioned symptoms since. Nevertheless, she has been seen frequently because of severe, chronic emotional problems.

Case 13. A 38-year-old woman was admitted to St. Luke's Hospital May 13, 1962, with a history of sudden onset of dizziness, faintness, flushing, and sweating at about 3 P.M. the same day. She had never had this before. Physical examination was negative. Numerous studies were done which were negative or normal, except for a five-hour glucose tolerance test. The latter gave definite evidence of diabetes mellitus and, in addition, at the fifth hour the blood sugar was down to 50 mg. percent. Fifteen minutes after the last blood specimen was drawn she suddenly became hungry, hot, sweaty, and weak. This was relieved by food. On questioning she stated that for several years she tended to tire easily and noted perineal itching. She was discharged with a diabetic diet and has continued to feel quite well.

Case 14. This 54-year-old woman was admitted to St. Luke's Hospital August 21, 1962. A year before admission she had begun to have frequent episodes of tremulousness and hunger at noon that was relieved by the noon meal. Four months before admission the same symptoms began to occur about 10 A.M., necessitating intake of food several times until noon and resulting in a 10-lb. weight gain. A five-hour glucose tolerance test was done which gave evidence of diabetes plus a drop in blood sugar at the fourth hour to 43 mg. percent. Between the fourth and fifth blood specimens she was troubled with shakiness, nausea, prickly sensation, nervousness, sweating, chilliness, and hunger. These symptoms subsided promptly when she was given food after the last specimen was drawn. She was discharged with a diabetic diet and has felt well since.

COMMENTS

In the diagnosis of spontaneous hypoglycemia one must always remember the secondary hypoglycemia of early diabetes as one of the commonest causes. In the course of diabetes it comes early, perhaps the earliest of all symptoms. It is frequently accompanied by excessive food intake and weight gain. There may be other clues to diabetes in the same patient, such as history of glycosuria, positive family history, abnormal obstetrical history, or premature vascular disease. It precedes the florid stage of diabetes in which one finds polydipsia, polyuria, and other well-known symptoms of diabetes. In only a minority is the fasting blood sugar elevated. Pomeranze[8] reported that 111 of 1,140 diabetic patients gave a history of hypoglycemia before recognition of diabetes. The author has had occasion to interview known diabetic patients with close relatives with "too little sugar." Perhaps some of these have diabetes with secondary hypoglycemia.

The diagnosis of this disorder is made by a five-hour glucose tolerance test under standard conditions, with the patient ambulatory and prepared with the intake of 300 gm. of carbohydrate per day for at least three days before the test. In borderline cases the test should be repeated. It may sometimes be necessary to draw blood every half hour from the third to fifth hour in order to document the hypoglycemia. The physician should interview the patient during or immediately after the test and record any hypoglycemic symptoms experienced by the patient.

CONCLUSION

Acquaintance with the secondary hypoglycemia of early diabetes will help the clinician diagnose diabetes earlier, many years earlier in some cases. It is a distinct entity and should not be confused with functional hyperinsulinism (functional hypoglycemia) or any of the other types of spontaneous hypoglycemia.

I wish to thank the following physicians for permission to include their cases in this series: Dr. Perry Triggs for cases 4 and 13, Dr. Robert D. Story for cases 8 and 9, and Dr. Francis T. Lytle for cases 10 and 14.

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COMPARED WITH SERUM AMYLASE and lipase measurements, determination of urinary amylase excretion per hour is a more sensitive diagnostic index of pancreatitis and a better monitor of the disease process. Urinary amylase is more often elevated, reaches higher values, and remains elevated for longer periods. Prolonged elevation of urinary amylase values facilitates diagnosis during late phases of attacks when the diagnosis is otherwise obscured. Any patient with upper abdominal pain suggestive of pancreatitis is a candidate for one-hour urinary amylase excretion studies. Hyperamylasuria usually confirms the diagnosis, but the test is repeated if normal values persist in patients with clinical signs of the disease. More than half of 94 patients with confirmed pancreatitis had abnormally high urinary amylase values.

EARL L. GAMBILL, M.D., and HAROLD L. MASON, PH.D., Mayo Clinic and Foundation, Rochester, Minn. J. Amer. med. Ass. 186:24-28, 1963.

Shortness of Breath and Chest Pain

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THE COMBINATION of 2 or more symptoms may be helpful to the physician in making a diagnosis, but, just as frequently, it can confuse him. The common association of chest pain and shortness of breath is an example of such a paradox. There are at least 100 conditions which cause chest pain or shortness of breath as individual symptoms, but considerably fewer conditions come to mind when they occur together. Chest pain may indicate that a catastrophic event is occurring in a previously well patient, or it may signify only that an old patient has come for reassurance that his rheumatic complaints are not of cardiac origin. Shortness of breath, in like manner, may represent rapidly developing pulmonary edema or, possibly more commonly, the overbreathing of a chronically anxious patient.

When these symptoms occur together, a more serious problem frequently exists. Since it is usually pain which is the most alarming symptom to the patient and which may of itself cause shortness of breath, some general remarks concerning chest pain are in order. A quick inventory of the mode of onset, of the nature, and of the duration of the pain helps the clinician to assess the magnitude of the problem. This also brings to mind the more likely diagnostic possibilities. Additional inquiry concerning measures used for the relief of pain adds further information. Associated symptoms, which may include shortness of breath, nausea, vomiting, perspiration, and cough, further influence the clinical correlation of facts which assist in making the diagnosis. There is little need to emphasize that often the diagnosis will be immediately apparent, if the physician truly listens to the patient's narrative of events.

Shortness of breath is a symptom which by definition is "the consciousness of the necessity for increased respiratory effort" (Meakins).[1] When associated with chest pain, shortness of breath often has less significance to the patient. To the physician, however, it is an important additional point for evaluation of total cardiopulmonary relationships.

Cardiovascular diseases. When the patient comes with the symptoms of shortness of breath and chest pain, the physician is immediately concerned as to whether the difficulty is of myocardial origin. Classically, pain of such origin has a constricting, squeezing quality, also described as a "heaviness."[2] With it, the so-called angor animi, or feeling of apprehension or of impending death, may be present. This pain is usually substernal, at times is precordial, and frequently radiates to more remote regions, such as the jaws, arms, or shoulders. More rarely it may be felt in the back, forearm, hand, or abdomen. Shortness of breath may be a prominent symptom in the presence of a massive myocardial infarction in which the cardiac output is severely impaired. Shortness of breath may be less severe if it is caused by the frequently associated anxiety. Profuse perspiration, clammy skin, and lowered blood pressure usually indicate that serious myocardial damage has occurred.

Clinically, coronary disease with myocardial involvement has customarily been classsified in a general way as (1) angina pectoris, (2) coronary insufficiency or failure, and (3) myocardial infarction.[3] Angina pectoris most frequently has an exertional or emotional triggering mechanism. It is promptly relieved by the removal of the stress or by the taking of nitroglycerin, and it is short-lived, rarely lasting more than five minutes. It is usually not accompanied by any unusual shortness of breath. Coronary insufficiency is ill-defined, but it is chiefly distinguished by the length of the attack (no more than fifteen to thirty minutes) and by the greater severity of the pain. The electrocardiographic changes of acute myocardial infarction are absent. Dyspnea may be a prominent symptom, particularly as the patient becomes more apprehensive on finding that nitroglycerin is not aborting the attack.

The pain of myocardial infarction is severe and unrelenting, and, in the presence of acute

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left ventricular failure, shortness of breath and orthopnea are prominent symptoms. The patient has an ashen appearance. The blood pressure ultimately drops, although it may be normal initially or even elevated. The electrocardiographic changes of infarction may be present initially or may not appear for many days. Brief mention should be made of so-called painless myocardial infarction[2] which may be associated with acute left ventricular failure; in such a case, the only symptom is that of extreme shortness of breath.

The pain associated with pericardial irritation is frequently accompanied by shortness of breath. Capps[4] noted many years ago that the visceral layers of the pericardium are insensitive to pain, whereas the parietal layers and the adjacent pleura are extremely sensitive. This distribution of pain fibers may account for the unusual pain which is seen at times in acute pericarditis. It also accounts for the fact that pericarditis can occur without any pain whatever. The pain of pericarditis may involve the entire thorax or may be localized to the substernal, precordial, epigastric, or intrascapular regions. It may be of an aching or heavy nature, but frequently it is aggravated by changes in position, respiration, swallowing, or yawning. The presence of pericarditis may be substantiated by a pericardial friction rub, by the roentgenographic appearance of the cardiac silhouette, and by electrocardiographic ST-segment and T-wave changes which involve many leads and which are accompanied by no reciprocal alterations. Shortness of breath frequently is associated with a marked respiratory aggravation of chest pain.

Pain from the aortic arch, such as that arising from a dissecting hematoma, may be indistinguishable from the pain which occurs with myocardial infarction, although there is a tendency for the pain of dissection to migrate or "march" from one region to another as the dissection progresses distally. Usually the pain begins in the anterior part of the thorax, as does the pain of an infarction, but the aortic pain rapidly passes to the back, abdomen, hips, and lower extremities. This pain is usually described as being of a "tearing" or "ripping" nature. At times, however, it may be minimal or absent, especially if sudden syncope or collapse has occurred. The profound hemodynamic changes associated with aortic dissection may easily produce shortness of breath, which is aggravated by the severe pain and apprehension. There are 4 important features, as mentioned by Spittell,[5] which aid in diagnosing a dissecting hematoma involving the ascending aorta—(1) aortic diastolic murmur, (2) electrocardiographic evidence of myocardial ischemia or infarction, (3) pericardial friction rub or electrocardiographic evidence of pericarditis, and (4) significant diminution of the pulse or blood pressure in the right arm. These findings are readily explained anatomically. The dissection causes a dilation of the aortic ring and, frequently, extravasation of blood into the pericardial sac. The orifices of the coronary arteries or of the major branches of the aortic arch can be involved as the dissection progresses.

Accurate diagnosis of this lesion is important, despite the obviously high mortality. Some patients will survive the initial twenty-four hours, but more than 70% of these will die within two weeks. Recently introduced cardiac pump oxygenators which can be rapidly used without prolonged preparation may salvage more of these patients.

Before leaving the area of cardiovascular causes of chest pain and shortness of breath, it might be well to note that pulmonary hypertension as such may produce chest pain. This may be shown acutely in pulmonary embolism, but often it also is evident in cases of mitral stenosis with marked pulmonary hypertension. The chest pain which occurs in this situation may mimic that of coronary disease—that is, it may be episodic and aggravated by exertion, much as is the pain of myocardial ischemia. Relief may also be obtained with nitroglycerin. The exact mechanism of this type of pain has not been elucidated fully.

Pulmonary disease. Shortness of breath is obviously a more frequent complaint in pulmonary disease. As noted by Hodgson,[6] extensive destruction of pulmonary tissue, by inflammatory processes or tumor, may be present in the complete absence of thoracic pain. This is because the lung tissue itself and the covering visceral pleura are completely without sensation. Pain associated with pulmonary disease usually is due to involvement of adjacent structures, such as the chest wall, the diaphragm, and the parietal pleura. In addition, involvement of mediastinal structures may also cause pain.

Pleural pain arising from irritation of the parietal layers of the pleura has a sharp, stabbing, or sticking quality which is closely related to thoracic movements, as in coughing, breathing, or moving the arms. If the central portion of the diaphragm or other structure supplied by the phrenic nerve is involved, the pain may be referred to the top of the shoulder or to the superior ridge of the trapezius muscle. If the periphery or the posterior third of the diaphragm is involved, the pain may be referred to the lower part of the thorax or to the upper part of the abdomen. It is important to remember that diseases of the pleura are rarely primary and that pleuritic pain usually indicates present or past pulmonary disease.

Shortness of breath associated with pleuritic pain is usually shallow, since the patient shortens his respiratory excursions to diminish pleural irritation. Acute pulmonary disease such as pleuritis, pneumonia, pulmonary embolism, and spontaneous pneumothorax may all be seen with a similar picture of shortness of breath and chest pain. In these clinical situations corroborative evidence, such as that found by roentgenographic changes, electrocardiographic changes, leukocytosis, and the total clinical setting, is helpful in making the diagnosis. It has been suggested by some authors[7] that the differential diagnosis of myocardial infarction versus pulmonary embolism in a postoperative patient may be improved by determining the values for serum glutamic oxalacetic transaminase (SGOT), serum lactic dehydrogenase, and serum bilirubin. In pulmonary embolism, the value for SGOT is theoretically normal, whereas the other values are elevated. The pitfalls of relying on the laboratory for a clinical diagnosis, however, are well known.

Pleuritis and pneumonia frequently occur spontaneously in a previously well patient. A similar observation may pertain to spontaneous pneumothorax. Pulmonary embolism, on the other hand, most often occurs during the second week after an operation or is associated with preexisting cardiac disease. The electrocardiographic changes of acute cor pulmonale, which may be present, aid in the differential diagnosis. It is obvious that an accurate diagnosis of pulmonary embolism is urgent, since the immediate institution of anticoagulant therapy may be lifesaving to the patient.

Diseases of the esophagus and abdominal viscera. Diseases of the esophagus and abdominal viscera can be associated with chest pain. Shortness of breath, however, is usually not a prominent part of the syndrome. The differentiation of the pain of esophageal origin from that due to myocardial ischemia may present a perplexing problem to the clinician, as esophageal pain may also have a squeezing, constricting quality and may radiate from the substernal area to the neck, jaws, or arms. Esophagitis usually has a burning quality like indigestion, whereas spastic muscular contractions of the esophagus may produce severe constricting pain.[8] The squeezing type of pain also may be present with hiatal hernia, and differentiation of this pain from that of coronary origin may be extremely difficult. Diffuse spasm of the esophagus is very painful and may or may not be associated with swallowing. The patient may be awakened during the night because of severe substernal distress which may last from minutes to an hour or more. The passage of time and the finding that electrocardiograms repeatedly are normal are reassuring, for they indicate that no cardiac disease is present. The esophageal motility test[9] has proved a useful tool in the diagnosis of thoracic pain problems, and it provides an accurate method of establishing the diagnosis of esophageal spasm.

Pain referred to the thorax from abdominal viscera—in such conditions as ulceration of the stomach or duodenum, acute or chronic cholecystitis with cholelithiasis, and acute pancreatitis—is fairly common, but such pain is rarely centered primarily in the chest. One exception to this occurs in posterior penetrating duodenal ulcer with involvement of retroperitoneal structures. In this situation, the pain may be felt only in the scapular or intrascapular regions. Shortness of breath is rarely a prominent symptom in disease of abdominal viscera unless acute pleural irritation is present. A subphrenic abscess can readily cause diagnostic difficulty if the sensory innervation of the diaphragm is not considered. It is important to mention that the presence of disease of abdominal viscera does not exclude the possibility of coronary disease as a cause of symptoms. Disease of the abdominal viscera, in fact, may serve as a triggering mechanism.

Pain in the chest wall. Skeletal or chest wall pain associated with shortness of breath is one of the most frequent problems seen in the average clinical practice. It is also one of the most exasperating. The exact etiology of the chest pain is obscure. Usually, muscle fatigue, poor posture, and anxiety are mentioned as causes. Hyperventilation with resultant ischemia of the respiratory muscles has also been advanced as a reason for the recurring chest pains. These pains may occur in any location in the thorax, but it would seem that the majority are precordial, "in the region of the heart." Overbreathing, as a result of anxiety, is a frequent accompanying symptom. The chest pains may have a sharp, stabbing quality or may be of a steady, aching nature, usually unrelated to exertion or to position. Tenderness may be present on palpation of the intercostal regions.

Patients with this difficulty, frequently very tense, anxious individuals, are difficult to reassure. The initial step in reassurance is a careful appraisal of the cardiac status, including, if necessary, a Masters tolerance test to exclude coronary disease. Reassurance may still be difficult after a complete examination. Sedation and postural exercises are helpful adjuncts.

SUMMARY

Chest pain and shortness of breath are commonly associated. Frequently, they are the hallmarks of a major cardiovascular injury. At other times, they represent an occurrence of much lesser magnitude. Whatever the cause, they are alarming to the patient, and they require a careful inventory of the more likely possibilities. The patient will usually give the physician the diagnosis, if he takes the time to listen.

This paper was read at the Third Annual Respiratory Disease Conference, sponsored by the North Dakota Tuberculosis Association, Bismarck, N.D., April 11, 1964.

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NATAL TEETH or neonatal teeth which emerge by the thirteenth day occur in at least 1 of every 3,000 births, possibly due to a hereditary trait. Associated syndromes are: [1] chondroectodermal dysplasia or Ellis–van Creveld syndrome, [2] oculomandibulo-dyscephaly with hypotrichosis or Hallermann-Streiff syndromes are: [1] chondroectodermal dysplasia or Ellis–van Creveld syndrome. Possibly because of malposition of tooth germ, cleft lip and palate and cyclopia may accompany natal and neonatal teeth.

JESSIE BODENHOFF, D.D.S., and ROBERT J. GORLIN, D.D.S., Royal Dental School, Copenhagen, and University of Minnesota, Minneapolis. Pediatrics 32:1087-1093, 1963.

OSCILLOMETRY IS A SIMPLE, RELIABLE METHOD for detection and evaluation of aortic and iliac occlusive disease. Oscillometric indices of 2,5 in the upper thigh and of 3 above the elbow are established lower limits of normal for arterial circulation. Oscillometric evidence of equal or almost equal loss of arterial circulation in both upper thighs and an increase above the elbows indicates coarctation of the aorta just distal to the left subclavian artery. Oscillometric readings show a great and almost equal loss of arterial circulation in both upper thighs in patients with thrombosis of the lower aorta or aortic graft occlusion. Similar readings are found in each thigh in serious atherosclerosis of the lower aorta, but the index shows less loss of circulation in milder forms of the disease. Although differentiation of the condition from aortic obstruction depends on palpation and other methods, a 95% loss of circulation in both thighs can be detected in patients with bilateral thrombosis of the iliac arteries. In patients with atherosclerosis of the iliac arteries, oscillometric examination may show marked differences in circulation loss in both thighs, depending on the degree to which the iliac arteries are affected.

BROR S. TROEDSSON, M.D., University of Minnesota and Veterans Administration Hospital, Minneapolis. Arch. phys. Med. 44:651-655, 1963.

H. D. LEES *Series*

Dos and Don'ts for Health Service Physicians

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Although one has selected the title "Dos and Don'ts for Health Service Physicians," the real concern is an attempt to define those attributes necessary in making a good health service physician and, for those not actively engaged in student health practice, to serve as a guideline in handling the adolescent patient. The "Dos and Don'ts" will form an easy framework on which to build the picture.

One of the devices used by Conan Doyle in making Sherlock Holmes perhaps the greatest detective of fiction was his apparently miraculous power of deduction. We all remember how he would amaze his unflagging henchman, Dr. Watson, with a simple explanation of the processes leading to his astonishing conclusions, and how the phrase was coined to become a part of the English language—"Elementary, my dear Watson."

Once explained to Watson and the reader, it did seem elementary; but it was in the logical application of the elementary that Holmes became a great detective.

Much of what will be brought out may seem elementary, but as in the simile above, the logical application of certain elementary facts will result in the creation of an efficient, successful, and acceptable health service physician. It is not to be assumed that you are unaware of the points to be discussed, but rather that you should regard this paper as a review, applicable to all of us and, I hope, of some practical use in recall.

What precisely are the attributes necessary for a good health service physician, apart from the obvious essentials of proved ability and sound medical training?

First of all, he should be a man of wide experience in general practice, having a genuine interest in the student age-group, and possessing a patient understanding of the problems peculiar to it. He must, of course, be emotionally stable and capable of calm thinking, clear expression, and sound judgment. In addition to this, he must have the faculty of being able to work harmoniously with others and the quality of being able to encourage others to work harmoniously with him.

If one were to coin a phrase covering the broad responsibilities of his many fields in health service practice, one might say "Cooperation is the keynote of success." By this it is not meant that the health service physician should be a general doormat, with an active sideline of apple-polishing. Far from it. Cooperation is essential in four main areas:

1. With the other members of the health service staff

2. With the university administration and other departments generally

3. With parents of students

4. With the student himself.

The student is placed last, but to be thoroughly platitudinous, he is by no means least. In the case of the student your cooperation is only a part of the story, because with him you must first of all earn his cooperation; this means the development of that strange and indefinable something in the personality that inspires both confidence and respect in the student.

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Dealing with the four main areas, I will steal a line from Holy Writ: "The last shall be first." After all, our first concern and responsibility as doctors is with the patient—and the student is the patient.

And now for some of the Dos and Don'ts particularly applicable when gaining the confidence and respect of students.

DO remember when he panics that the student does not have your knowledge that his symptoms are relatively trivial. One is sometimes tempted to be impatient with the student who has suddenly discovered his xiphisternum and is sure that he has a cancer of the stomach. This has happened—and it might have been easy to blast the student for being neurotic. This, one must never do. This brings us naturally to our second "Do."

DO explain his illness or problem to the student in a way that he can understand. Don't hide behind a mass of technical terms and polysyllabic verbiage. The student will not benefit and neither will you. If you merely give him a diagnosis and fail to translate it in terms of his own symptoms and his own body, he will only try to elaborate on it from the resources available to him. As an example, the writer had a student who came into the Health Service at 1:00 a.m. in a complete panic, declaring that his heart was stopping, he was losing the use of his arms, and he was going blind. The resident physician had him put to bed and suitably sedated, but could find nothing beyond a minor scalp contusion. When he was seen the next morning, calmed by the sedative, but still in acute fear, it was learned that having fallen at home and struck his head on a bed-post he had gone to the family physician. It should be explained that he was an apprehensive youth with a very definite fear of illness. The family doctor had reassured him that the injury was superficial but told him that he was suffering "a degree of shock" without further explanation. The student then looked up "shock" in a home medical dictionary and read that shock might produce cardiac arrest, and that a shock could result in paralysis of the limbs or even blindness!

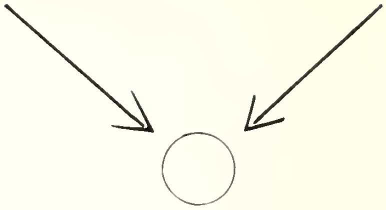

Fig. 1

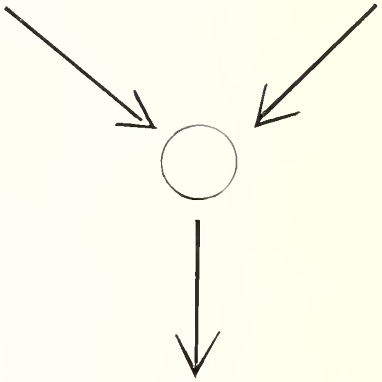

Fig. 2

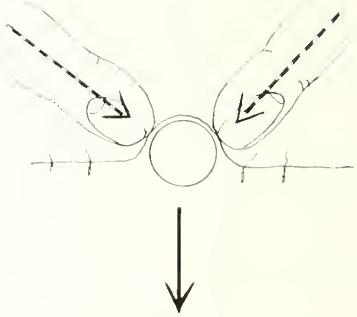

Fig. 3

In even the simplest of cases a little time given to explanation, with the aid of simple diagrams on a scratch pad, will be time well spent. In giving instructions a simple explanation of why this or that should be done is of inestimable value. For example, in the matter of furuncles one can say "never squeeze a pimple" with the sure knowledge that the student will certainly squeeze the very next one he develops. Instead, one always asks the student if he knows anything of simple physics and draws a diagram on the scratch pad (Fig. 1). In answer, he points out that the resultant of the forces will be as shown (Fig. 2). Having gotten this far, one then changes the drawing, filling in the skin surface and a pustule, and representing the two forces as fingers (Fig. 3). With an elementary explanation of the white cell barrier, the patient soon realizes that his efforts will spread the infection beyond that tenuous line of defense, and the stray bacteria, behaving like moles in a lawn, will produce fresh pimples all over the place. This is only one example. Others will readily suggest themselves as long as one keeps the need for explanation in mind at all times.

Having decided, therefore, that we must not brush him off, this naturally brings us to our third "Do."

DO listen to his tales of woe and realize that to the student his problem is not petty, but real and immediate. He may stumble a bit in his narrative and may skate gingerly around the problem for awhile, but a little show of sympathetic interest on the part of the physician may bring him to the heart of the matter.

DO remember that emotionally it has probably cost him quite a bit to come to you and bare his most intimate soul. Therefore, DON'T look at your watch or show other signs of impatience. DON'T indicate that in coming to the vital point he has already used up his alloted appointment time and that the next patient is waiting. If your secretary should phone to tell you the next patient has arrived, DON'T say "I will see him almost immediately." Allow the student the time he needs to come to the point, helping him if necessary. If the student's problem appears to be largely psychiatric in nature, DON'T rush to refer him to the health service psychiatrist. He has come to you because he knows you and trusts you.

DO help him as far as you can, and only if it is a medical necessity, refer him to psychiatry. DO remember that if he brings his problems to you he has already begun to trust you and unless you pay him the courtesy of at least a full and sympathetic hearing you will betray that trust.

Incidentally, if in the type of emotional problem that you feel has a real psychiatric background, you should refer him to psychiatry, remember that he will probably be alarmed by such a suggestion. It is the writer's practice always to explain to such a student that the psychiatrist has to deal with two types of cases: the normal person who is reacting normally to an abnormal situation, and the abnormal person who is reacting abnormally to a normal situation. With this type of reassurance the student is much more amenable to receive psychiatric help.

In dealing with the student's situation as he portrays it to you, DO remember that though his body may be mature his mind is not. He will attempt ineptly, like a bad actor in an amateur company, to portray an adult role; so DO remember that frequently when he is trying most desperately to be an adult he will seem to be at his most childish. Be tolerant of this and try to remember how you felt when you were a student. It does us good to give ourselves a red face occasionally when we recall some of the very "adult" things we did when we ourselves were students.

Before becoming impatient with him DO remember how sensitive you were as an adolescent and how you tried to hide it even from yourself, let alone from others.

DON'T remind him of the immaturity he is trying desperately to overcome.

He cannot do anything about maturing and neither can you. Only time can help.

The student who places his trust in you is your patient. DO remember that he is a patient first and a student second and therefore entitled to the courtesies and privileges usually extended by a doctor to his patient. He may be immature and awkward—even ignorant—but DON'T talk down to him. Certainly DON'T talk up to him—simply talk with him.

DON'T disparage his opinions. Disagree with him if you must, yet DON'T be afraid to be completely firm with him when it is necessary. No matter how much the young may clamour for independence and recognition they always respect a measure of discipline when it is justified. By listening to the student fully and sympathetically, yet with the unspoken authority of an older and more experienced person, you will do more to gain his ultimate respect than by any display of pomposity and aloofness.

While we must endeavor to be approachable at all times, there are certain areas where we must exercise particular care, for example:

DON'T express your views to a student about his parents' attitudes or actions in a domestic squabble he may tell you about. This is one of the quickest ways to find yourself the central figure in a very heated and unpleasant dispute, bringing upon yourself nothing but disfavor from both the parents and the university administration if a complaint is made.

An even more common danger is avoided if you remember:

DON'T discuss a student's case beyond the health service unless you have his written consent. It can very easily be twisted to look like gossip. If the student feels that you may reveal his medical secrets to other departments, he may well decide to take his problems to someone outside the orbit of the university or the Health Service.

This brings us to the realm of relationship with the university administration. Here the situation is not as simple as would appear on the surface. In 99% of the cases, inquiries from university officials about a student's health are well meaning and innocuous. However, it is important to remember that no matter how well-intentioned the inquiries may be, for you to reveal professional information about a student without his consent, constitutes a clear breach of professional confidence.

Fortunately, it is seldom that a university administration fails to recognize this, but should the occasion arise it can be extremely unpleasant for all concerned. If the doctor reveals confidential information he is liable to suit by the patient, and if he fails to reveal it he is invariably dubbed as uncooperative by an uninformed administration. The health service physician should, on every possible occasion, make it clear to the student that his confidence will be completely respected and preserved and, to the administration, that he will be willing to make full recommendations in any given case without necessarily divulging the confidential medical details behind his recommendations. By cooperating to the limit of his ability within the code of medical ethics, he will gain the respect of both the administration and the student. It is important, however, that the physician be completely strict in this regard, otherwise a sticky situation will inevitably result. When a dean asks "What is wrong with Joe Blow?" it is easy and apparently innocuous to answer "influenza"; but if the physician is in the habit of giving out such simple information, and then suddenly clams up on a case of, say, gonorrhea, the inquirer has only to put two and two together to realize that there is something detrimental to the student in the diagnosis which is withheld. A strict policy is therefore essential regarding all specific inquiries on the health of any individual student.

DO endeavor to be as helpful to the university administration as you would be to the student and above all to cultivate the manner which makes you approachable. Welcome information about students and student problems, and welcome discussion of students' individual cases—bearing in mind the areas that are professionally confidential. If you do this, thereby earning a reputation of being approachable, you will not only make yourself more valuable to the university but will also make your life easier. At the same time you will achieve a secure position in the mind of the student body.

One final "DON'T."

DON'T try to impress people—if you feel you have to, you should not be in health service work.

It has been said that "no man is an island unto himself." The health service doctor who remains impersonal and aloof within the sterile sanctuary of his office can never know the ultimate mark of recognition and respect—the casual "Hi, Doc" from students when he is strolling on the campus. This is reserved for the man who has won their confidence, the man who is their doctor, and who understands them.

POSITIVE-CONTRAST MYELOGRAPHY is the method of choice for visualization of masses and some developmental anomalies in the area of the foramen magnum. The technique helps to distinguish between correctable lesions at the craniospinal junction and purely degenerative defects with the same signs or symptoms. If pneumographic or angiographic examination fails to show certain tumors of the cerebellopontine angle, the jugular foramen syndrome, pontine glioma, or aneurysm of the vertebral or basilar artery, positive-contrast myelography provides an alternative method. After contrast medium (Pantopaque) is instilled into the subarachnoid space, the patient is placed on a tilting fluoroscopy table. Many of the structures in the pontine cistern can be visualized in anteroposterior and lateral roentgenograms made with the patient face down. The cisterna magna, cerebellar tonsils, and ventricles are visualized on films made with the patient supine. With the patient's head erect, the medium drains to the lumbar region and can be removed after the examination.

HILLIER L. BAKER, JR., M.D., Mayo Clinic and Foundation, Rochester, Minn. Radiology 81:791-801, 1963.

Giant-Cell Carcinoma of the Lung

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GIANT-CELL CARCINOMA of the lung was described in 1958 by Nash and Stout[1] who published reports of 5 cases.

The characteristic findings in this tumor are giant and many uninuclear cells. Other parts of the tumor present a picture resembling a sarcoma or, more precisely, a rhabdomyosarcoma, with the exception that cross striation cannot be made evident by special staining methods. In 1961 Ozzello and Stout,[2] using tissue culture, were able in one case to demonstrate that the tumor was of epithelial origin. Bendell and Ishak[3] and DeAngelis, Zarrow, and Sochan[4] described 3 more cases the same year. Thomas[5] described another case in 1962. In 1963 Hellstrom and Fischer,[6] after going through their material of 487 cases of primary cancers of the lung, found 17 instances of giant-cell carcinoma. Thus the number of published cases has risen to 27.

REPORT OF A CASE

A 78-year-old male had been treated as a cardiac patient during the past five years. For six weeks he had been complaining of persistent cough and dyspnea. Two weeks before admission he became very weak, expectorated copiously, and complained of pain in the left side of the chest. He had a temperature of about 38° C. Occasionally he had pitch-like stools. He does not smoke now. No information about his former tobacco habits was available. After being admitted to the hospital, his condition rapidly worsened. X-ray examination showed a tumor, the size of a man's fist, basally in the left lung near the hilus. Further relevant findings were general arteriosclerosis, myocardiopathy, pleuropericarditis, and bilateral hydrothorax. He died forty days after hospitalization, eighty days after onset of symptoms.

At necropsy the body was very emaciated. The most important finding was an incompletely delimited tumor in the lower lobe of the left lung close to the hilus, 6 cm. in diameter, infiltrating the walls of the principal bronchus leading to the lower lobe. Slightly laterally and closer to the base was a second mass apparently quite well delimited, with a diameter of 8 cm. Both tumors were whitish with occasional small, yellowish necrotic foci between the tumorous growth. The second mass had its central area softened into amorphous bits of tissue. In the right suprarenal gland we found a grayish lump measuring 2.5 cm. across.

There was found, and later confirmed histologically, pulmonary edema, right basal bronchopneumonia, purulent bronchitis, extensive generalized arteriosclerosis, angionephrosclerosis, fibrosis of the myocardium, fibrinous pericarditis, a hemorrhagic gastric ulcer, and adenomatous polyps of the rectum.

The histological examination slides colored with hematoxylin and eosin, Gomory, periodic acid–Schiff, Mallory, Azan-Heidenhain, and mucicarmin stains revealed a tumorous mass pertaining to the lung with a preponderance of giant cells and numerous anaplastic polymorphic cells possessing 1 nucleus; other regions showed a more fascicular structure. The giant cells presented a very bizarre picture. The majority were oval or polyhedric with a well-defined eosinophilic cytoplasm. Most of the cells had 2 to 3 nuclei; cells with more nuclei were rarely encountered. Those nuclei were very bizarre in form, but the majority were oval. Occasionally they appeared to be lobulated or kidney-shaped. They were large, mostly pale and had 1 sizable nucleolus or a number of smaller nucleoli. The chromatin was distinctly visible in all nuclei and was partly spread throughout the nucleus in places more adherent to the periphery. In some cells the nuclei were closely ranged; in others they appeared more like a syncytium. Besides these giant cells, many cells with only 1 nucleus were seen. Their form, though varied, was mostly oval, but some transitional forms tending toward the spindle shape could be seen. The nuclei also presented a distinct polymorphism, and some were very similar to nuclei in the giant cells. Colorless vacuoles were occasionally seen in the cytoplasm of giant cells. Some cytoplasms showed small inclusions—particles which ap-

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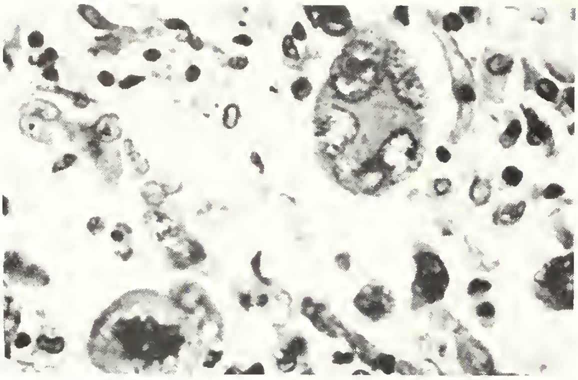

Fig. 1. (× 540) Portion from tumor. Giant cell and pleomorphic cells

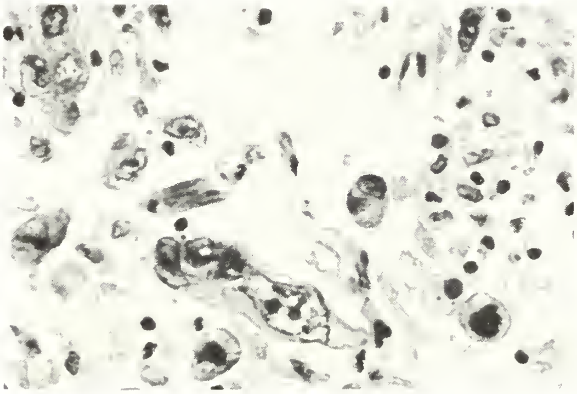

Fig. 2. (× 320) Fusiform giant cell. Many smaller cells, mostly pleomorphic, some fusiform

parently had been subject to phagocytosis. In parts of the specimen where a fascicular structure prevailed, large spindle-shaped cells with an eosinophilic cytoplasm could be found. Here, the cell borders were not always distinct. The oblong nuclei were also spindle-shaped and darker, with the chromatin uniformly dispersed. The nucleoli were rather small. Also in those regions, giant cells could be found and, occasionally, even all transitional forms between the formerly described giant and anaplastic cells. Mitoses were numerous everywhere, mostly in the area taken up by giant cells. Almost every section showed areas of necrosis. Reticulin fibers, especially in the territory where giant cells predominated, were rare and irregularly distributed. Cross striation was not found by Heidenhain's method. Other coloring methods did not reveal anything of special interest.

Necropsy revealed that the first tumor mentioned had invaded the wall of a larger bronchus. We were unable to demonstrate histologically the presence of tumorous tissue within the bronchial mucous membrane proper. All we found were necrotic areas where the tumor had taken hold of the uppermost strata of the submucosa.

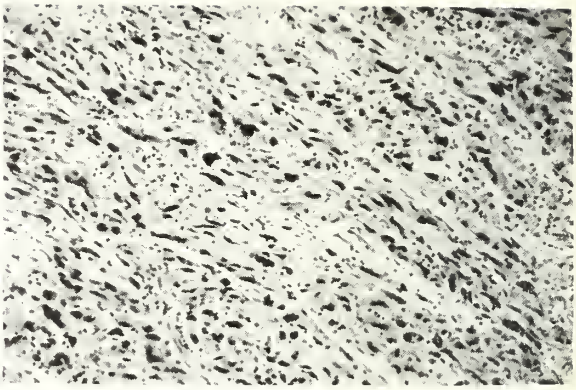

Fig. 3. (× 80) Masses of fusiform cells resembling sarcoma

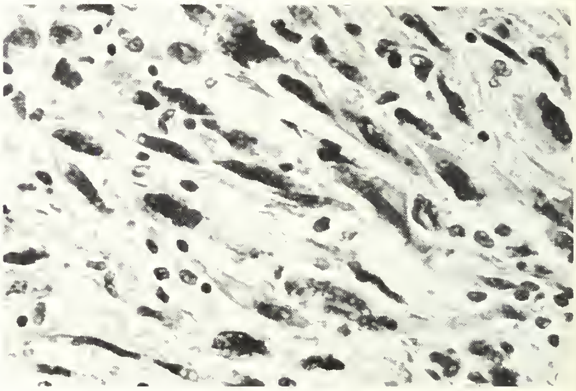

Fig. 4. (× 320) Fusiform cells

Smaller metastatic foci were found in the bronchopulmonary lymph nodes. The mass found within the right adrenal gland had the same structure as that seen in the lungs.

Comparing our findings with the description of the cases published in the literature on the subject, we concluded that we were dealing with a case of giant-cell cancer of the lung.

DISCUSSION

There are few published works on giant-cell carcinoma. The earliest writings on the subject give the impression that giant-cell carcinoma is a very rare neoplasm, but Hellstrom and Fischer's work[6] seems to contradict this, since they found giant-cell carcinoma present in 3 to 4% of their patients. Stout[7] alone found 35 cases.

In the microscopic structure of this carcinoma there is an especially interesting area resembling rhabdomyosarcoma. It is to be kept in mind that a certain number of giant cells can be found with anaplastic carcinoma of the lung.[8] Therefore, when analyzing this kind of tumor, rhabdomyosarcoma must be taken into consideration. According to Ozzello and Stout,[2] every pulmonary growth where aforementioned elements of giant-cell carcinoma appear and where it is impossible to discover the existence of cross striations may be interpreted as an epithelial tumor, a carcinoma. The manner of metastasis which is similar to that of other carcinomas of the lung (for example, that of the brain and adrenals) also supports the theory of epithelial origin. The behavior of the reticulum also is similar to that observed in other carcinomas: It is less developed and irregularly distributed.[5,6] The phenomenon of phagocytosis is unusual in epithelial cells and presents a special problem. Hellstrom and Fischer[6] draw attention to the fact that phagocytosis is not being observed in rhabdomyosarcoma or in other tumors with giant cells of mesenchymal origin.

In most published cases the starting point of such tumors could not be found. Bendell and Ishak[3] in one case discovered the point of origin in the bronchial epithelium. Hellstrom and Fischer,[6] in 3 cases, found foci where the tumor had the distinct likeness of an adenocarcinoma. In our case we were unable to establish the site from which the tumor initially developed.

Earlier publications would suggest that giant-cell carcinoma of the lung generally appears in younger persons, is relatively voluminous, and develops more rapidly than the rest of lung carcinomas. In our case we were confronted with a relatively large tumor. The course of the patient's illness was rapid (less than three months), but the patient was 78 years old. According to the analysis by Hellstrom and Fischer of a more abundant material,[6] there exists only a certain gradual difference in malignity: Giant-cell carcinoma takes a more malignant course than the squamous form, but in comparison with other forms of lung cancer this difference in malignity does not exist.

By accepting giant-cell carcinoma as a special variant of lung cancer, the matter of classification of pulmonary carcinomas should be made the subject of a renewed discussion.

SUMMARY

A short review of the literature on giant-cell carcinoma of the lung is presented which embraces 27 cases. Description of one more case is given: a male of 78 years who had a large tumor in the base of the left lung. Histological examination showed the characteristic findings of a giant-cell carcinoma. In portions of the tumor resembling rhabdomyosarcoma no evidence of striation could be found. The authors point out the importance of recognizing those characteristics which differentiate this tumor from rhabdomyosarcoma.

In view of the observations published until now the classification of epithelial lung tumors (carcinomas) should be revised.

Dr. Stout, to whom our slides were submitted, examined them and agreed with our diagnosis. We also wish to express our gratitude to Dr. Stout for other supplementary information.

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NONUNION FRACTURE of the clavicle usually can be managed conservatively if asymptomatic and nondisabling. Open reduction is indicated for extreme or disabling pain, limitation of motion, weakness, numbness, paresthesia, or deformity. When surgery is warranted, nonunion of the middle third of the clavicle is best treated by open reduction with intramedullary Kirschner wire fixation and external splinting; excision is indicated in fracture of the outer third. Inadequate internal fixation at operation or excision of the pseudoarthrosis alone seems to predispose to nonunion. Of 69 patients with nonunion fractures of the clavicle, 47 were treated conservatively, with excellent results in 23; results were unknown in 21. Open reduction was performed on 22, with excision, bone graft, metal fixation, or combinations, and results were excellent in 10.

EINER W. JOHNSON, JR., M.D., and H. ROYER COLLINS, M.D., Mayo Clinic and Foundation, Rochester, Minn. Arch. Surg. 87:963-966, 1963.

Fred Constans Rodda, M.D.

MAX SEHAM, M.D.

Minneapolis

THE DEATH OF DR. FRED CONSTANS RODDA, pediatrician, 83, in Minneapolis last December was a personal loss to his former patients and their parents, as well as to the host of friends and colleagues who loved him.

Fred Rodda was a physician in the highest Hippocratic sense. He rose to the top of his profession in spite of early hardships. Born and reared on a farm in the Thumb of Michigan he was denied a formal high school education. As he matured his determination to seek education eventuated in his enrollment in the Ferris Institute, a day school for boys preparing to enter college. Fred completed the four-year course in two years and was accepted into the University of Michigan Medical School.

His internship at Milwaukee General Hospital was cut short because of poor health, and he was advised to go west. He obtained a locum tenens at Garrison, N.D., after which he hung up his shingle in Marmath, N.D., in 1906. He had the good fortune of finding his future wife Ruth Robbins teaching in a country school. Together they withstood the vicissitudes of a frontier town.

For four years he was all things to the sick of a fifty-mile area. He slapped life into newborns without the help of a nurse or a midwife, and he did amputations without an anesthetist. His last resort was a hospital located 100 miles away in Miles City, Mont. Fred's dedication to the sick and his selflessness exposed him to overwhelming physical and emotional hazards. Little wonder that he was the most beloved and venerated citizen of his community.

One summer day Fred had a call to deliver a baby in a tent across a river. Roads were impassable, for the river had overflowed and inundated the flat country. To reach the tent Fred mounted one horse and his driver the other and, tied to each other's saddle, they forded the river. Fred removed his wet trousers and delivered the baby.

In 1910 he moved to Robbinsdale, Minn., his wife's old home, and hung his shingle for the second time. Dr. J. P. Sedgwick, the first full-time head of pediatrics at the University of Minnesota, asked Fred to become his assistant. Shortly after, Fred felt it his duty to take postgraduate training in pediatrics. He studied a year with Czerny of Berlin and von Pirquet of Vienna. When he returned to Minneapolis, Fred joined Dr. Sedgwick again. They started the first clinic outside the downtown district. Dr. Rodda also became a part-time teacher in pediatrics.

Fred was meticulous in taking patient histories and possessed a keen power of observation. His diagnostic ability made him a much sought after consultant. He not only had great clinical skills but also a warm heart and human understanding. A letter to Ruth Rodda from a longtime colleague reflects these appreciated qualities:

MAX SEHAM *is an emeritus professor of clinical pediatrics at the University of Minnesota School of Medicine.*

> I suppose I had as much affection and admiration for Fred as for any man I knew. He was kind to me from the first when I came to Minneapolis. No other doctor could refer a patient as he did—he did not tell me what to do, but when we decided on the action he made the patient confident and made me feel I had his support. You don't know how much he helped me, and I never had quite the same feeling toward any other doctor.

At the age of 70 Fred retired from active practice. For thirteen years nature was his mistress. He spent hours digging, planting, and nurturing his beautiful garden. One of his close friends in the men's garden club said, "I'm sure that he thought of his plants and flowers as he did of little children: No effort was spared to keep them healthy. To watch him in the garden you could imagine him among his children in the nursery. He was never so happy as when he was in his garden, attending most lovingly to the little ones that were not doing so well and encouraging with special attention those that showed promise of blue ribbon calibre. As in the practice of medicine, so in his gardening Fred was a perfectionist. His garden was a showplace, and nothing pleased him more than to have his friends enjoy it with him, especially his fellow members of the men's garden club of Minneapolis to whom he was deeply devoted."

Besides winning blue ribbons at the annual flower shows, Fred spent time making friends with the birds in his garden. The birds knew they were welcome: One special cardinal had the temerity to whistle for additional food each late afternoon.

Fred was never bored. Spring brought days of joy preparing for the later color and beauty, summer and fall brought satisfaction for the fruition of his efforts, and winter was the time to read and study.

His last words were characteristic of his philosophy of life. With a wan smile he whispered, "I've lived a good, full life, thirteen years beyond three score and ten, and got a lot out of it. What more can one ask?"

ORTHOSTATIC HYPOTENSION in the cerebral arteries may cause neurological symptoms in patients with occlusive disease of the aorta and its branches to the cerebrum. Blood pressure determinations by ophthalmodynamometry should be done in patients with postural dizziness, syncopal attacks, loss of potency, anhidrosis, unexplained dementia associated with parkinsonian rigidity and tremor, or cerebrovascular occlusive disease. Blood pressure is measured in the retinal arteries in supine and erect positions. A sharp initial drop occurs when a patient moves from supine to erect position but returns to the previous level within three minutes; erect measurement, therefore, should be taken after the patient stands for three minutes to allow for normal compensation. Diastolic pressure is measured 2 or 3 times in each eye before determining systolic pressure. Measurement of intraocular pressure is done before and after ophthalmodynamometry. An ophthalmodynamometric study was made in 34 patients with various conditions associated with orthostatic hypotension, including 8 with idiopathic orthostatic hypotension, 17 with occlusive cerebrovascular disease, and 1 each with cerebromalacia, amyloidosis, myxedema, brain tumor, and generalized carcinomatosis. Supine retinal artery pressure was high in most but abnormally low in others, reflecting stenosis or occlusion of the carotid artery. In all but 2 of the patients with idiopathic orthostatic hypotension, the drop in blood pressure after standing three minutes was similar in retinal and brachial arteries. In many of the patients with secondary cases, however, ophthalmodynamometry alone revealed the defect.

ROBERT W. HOLLENHORST, M.D., JOHN G. KUBLIN, M.D., and CLARK H. MILLIKAN, M.D., Mayo Clinic and Foundation, Rochester, Minn. Proc. Mayo Clin. 38:532-547, 1963.

Transactions of the North Dakota State Medical Association

SEVENTY-SEVENTH ANNUAL MEETING

Minot, North Dakota, May 2, 3, 4, and 5, 1964

(Continued from the October 1964 issue)

Committee on Legislation

Essentially speaking, this committee has not been too active this past year, since the legislative assembly did not meet in Bismarck this past January, February, and March.

In looking ahead to the legislative session of 1965 in North Dakota, I believe thought should be given to possibly sponsoring legislation dealing with the "battered child." Thought also should be given to strengthening the statute that deals with privileged communication between the physician and the patient. Possibly, thought should be given to once again attempting to improve the eligibility standards of the MAA program in North Dakota.

On the national scene we find ourselves still combating the schemes of the socializers in their efforts to pass the present King-Anderson bill. We must continue to oppose this kind of legislation. We need to seek the aid of our friends and acquaintances in this fight and urge them to write our congressional delegation in Washington, D. C.

We should continue our support of COMPACT and AMPAC.

As stated previously, another legislative year is coming up, and past history tells us that medical bills have been increasing each and every session. We, as physicians, also have become more politically inclined and are watching legislation that might be both beneficial or detrimental to the medical profession as a whole. It would be my impression that there should be closer contact than ever in the coming legislative session between doctors and legislators. It would be my impression that we should set up a program, as we have done in the past, whereby one man in each legislative district becomes the key man in that district for the purposes of contact with legislators throughout the session. It is my impression that it would be good for organized medicine to have and show a definite interest in the legislative session by the presence of doctors almost constantly throughout the session. Doctors from all parts of the state should visit their legislators in Bismarck.

O. W. Johnson, M.D., Chairman
P. O. Dahl, M.D. Vice-Chairman

Committee on Public Relations

Since our last annual report, the Committee on Public Relations has continued its high level of activity and is taking positive steps in the direction of improving communications within our society and with the public.

Two meetings of national scope were attended by the chairman. The first of these was the AMA national legislative conference, held in Chicago last April, to which we were accompanied by Amos Gilsdorf, M.D., state association president; Mr. Lyle A. Limond, executive secretary; and Mr. Daniel Buchanan, director of public information and education. The information conveyed at this meeting was the type of information so essential to our general membership. It demonstrated very amply that the AMA is, indeed, up-to-date in its legislative approach and showed what we will have to face for the future as far as legislation is concerned. In August, we attended the annual AMA Institute, which was an excellent program designed to demonstrate problem areas in medical public relations and what is being done to meet them, both by medical and allied groups.

At this latter meeting, the groundwork was laid for our first conference of officers and committee chairmen, held in Bismarck, October 5, 1963. We were honored to have, among others, as guests, Dr. F. J. L. Blasingame, executive vice-president, and Dr. Norman A. Welch, president-elect of the AMA.

At our first committee meeting, held in Fargo last September, further work was completed on the proposed Code of Cooperation among physicians, hospitals, and the news media. The AMA program of emergency medical identification was also studied and a recommendation for its implementation made. Some of the tools of public relations which can be used on the district level were reviewed, and these include the Medical Milestones Radio series and AMA's Health and Safety Tips, among others. It is suggested that these aids be utilized by districts and perhaps even identified by particular districts. Work toward this end is still under way.

Another meeting of the committee was called in February at Fargo, and at that meeting we were able to approve the portion of the Code of Cooperation dealing with the medical profession. This completes the first step in its adoption, and we now hope to obtain cooperation from the media of communication, the hospital association, and so on, so that eventually a code acceptable to all will be achieved as it has been done in other states.

A bulletin was also issued to all district medical societies urging their adoption of the AMA emergency medical identification program, with a suggested method for distribution of the medical identification cards.

One of the most interesting new projects undertaken by the committee at its last meeting is the idea of an orientation brochure or program, or both, for new members of the North Dakota State Medical Association. This type of program is under way in a great many of the districts throughout the country, and the programs in use by the Milwaukee County Society, the North

Carolina Society, and the Wyoming Society were studied. A subcommittee has been formed and is currently attempting to formulate a brochure or program, or both, suitable for our society. It is the aim of this subcommittee to produce a product which will assist the doctor attempting to set up his practice in North Dakota, not only to know more about the Association and the AMA but to assist him in all of the other gray areas of practice such as Workmen's Compensation, welfare, Blue Shield, and the various voluntary health agencies, such as the Heart Association, Cancer Society, and so on.

It is still our contention as a state committee that district public relations committees must be established in all districts so that the work may be carried out on a local level and thus be more effective. We feel that the state committee should be an advisory committee and not given the entire responsibility of shouldering the public relations program for the state. If it is necessary to raise district society dues to carry on a program of local public relations, we feel it should be done.

As before, we wish to state emphatically that the cornerstone of good medical public relations is ethical medical practice, and only through ethical practice will it be possible to demonstrate to the public that we are concerned with their well-being and that we are, in fact, working for their benefit.

We sincerely hope that the association will again staff an emergency first-aid station in the capitol building for the forthcoming legislative assembly. If so, we urge greater participation from all of the district societies throughout the state.

We wish to again express our sincere appreciation for the excellent cooperation of the state office staff: Mr. Limond, Mr. Buchanan, Mrs. Fremming, and Mrs. Kohler and for the interest shown by the state president, Dr. Gilsdorf, and the state president-elect, Dr. Dodds.

John A. Swenson, M.D., Chairman

Committee on Official Publication

The Committee on Official Publication held no meetings in the year 1963.

The committee has felt satisfied with the official publication as it exists and has no additional reports.

Charles B. Porter, M.D., Chairman

Committee on Public Health

No meeting of the Public Health Committee was held in 1963.

No pressing matters came up which seemed to warrant a full-scale meeting of the committee.

The administration of the immunization program recently passed by the Congress was given to the Maternal and Child Health Committee. They appear to be making excellent progress along this line. It is hoped that the North Dakota State Medical Association will cooperate in the administration of this program.

At the last meeting of this committee it was advised that the new forms for tuberculosis be used both for new and old cases. Mr. Kenneth Mosser advised me that this has been accomplished.

On the summary for tuberculosis cases for 1963 it will be noted that 88 cases were reported. These were not all in the Indian population as one might expect, but 65 cases in the whites and 23 in the Indian. However, case rate per 100,000 for the Indian population was 223, while the case rate for the white population was 13.9 per 100,000, which is a considerable difference.

After talking recently to Dr. Cuadrado of the North Dakota State Tuberculosis Sanatorium, it seems probable that more and better laboratory facilities will be required for the treatment of tuberculosis.

Chemotherapy has become such an important part of the treatment that facilities for sensitivity tests for the primary drugs but also the secondary and tertiary drugs should be provided.

In the venereal disease summary for 1963 it will be noted that there were 47 cases of syphilis and 665 cases of gonorrhea.

Gonorrhea has increased 4.3% in 1963 over 1962. Syphilis has increased 27% in 1963 over 1962.

Saturday, March 21, 1964. A meeting of this committee was called on this date and was scheduled for the Oak Manor Lodge, Fargo. The following members were present: Percy L. Owens, M.D., chairman; W. L. Macaulay, M.D.; H. J. Wilson, M.D.; C. O. McPhail, M.D.; and G. U. Ivers, M.D. Others present were A. R. Gilsdorf, M.D., president of the North Dakota State Medical Association; R. D. Nierling, M.D.; C. J. Klein, M.D.; James R. Amos, M.D.; Tom Brown; Kenneth Mosser; Lyle A. Limond; and Daniel E. Buchanan.

Dr. Owens opened the meeting by calling the committee's attention to the topic of the medical aspects of licensing drivers. He then called on Dr. James R. Amos, state health officer, and Mr. Tom Brown of the department staff to speak to the committee.

Dr. Amos reported that the safety responsibility division of the North Dakota Highway Department was interested in the possibility of obtaining a medical advisory committee to provide them with advice and criteria on the medical aspects of driver licensure. Mr. Brown noted that, at the present time, the determination of driver's license revocations, based on physical or medical considerations, is made by a nonmedical person.

In discussing the matter of the medical aspects of driver licensure, members of the committee agreed that it is particularly obvious that local standards of medical screening of drivers are lacking throughout the state. Committee members were also given a copy of a summary of the organization and duties of the medical advisory committee to the Florida Department of Public Safety; a copy of a special report titled, "Medical Aspects of Driver Limitation," printed in the AMA Journal on February 1, 1964; and a summary of procedures followed by a typical medical advisory committee on driver licensure.

As a result of several suggestions and comments made by members of the committee, Dr. Ivers moved that the House of Delegates be informed in May 1964 that the Committee on Public Health had discussed the matter of the medical aspects of driver licensure and also the possibility of a medical advisory committee to the safety responsibility division of the North Dakota Highway Department and that the committee endorses the principle of a medical advisory committee to provide advice and criteria on the medical aspects of driver licensure to the safety responsibility division. Seconded by Dr. Wilson. Carried.

Before adjourning, the committee discussed the matter of increased emphasis on tetanus immunization on the state and local levels. Dr. Ivers suggested the committee encourage a program of increased tetanus immunization. Dr. Nierling moved this matter be brought to the attention of the House of Delegates. Seconded by Dr. Macaulay. Carried. Adjourned at 9:15 a.m.

Percy L. Owens, M.D., Chairman

NORTH DAKOTA TUBERCULOSIS REPORT, 1963

Source of Report of New Cases

Private physician	17
TB sanatoriums	54
General hospitals	0
Chest clinics	0
Mental institutions	3
Death certificates	1
Transferred from other states	6
VA hospitals	2
Public Health Service hospitals	5
Total	88

Sequence Which Led to Diagnosis

Contact and association	21
Mass screening	13
Follow-up of known reactors	3
Out-of-state reporting	7
Death certificates	1
Routine exam by private physician	43
Total	88

Form and Extent of Disease of Newly Reported Cases

Pulmonary	
Primary	26
Minimal	15
Moderately advanced	16
Far advanced	11
Nonpulmonary	20
Total	88

Race, Sex, and Age Distribution of New Tuberculosis Cases

	Non-Indian		*Indian*		
	Male	*Female*	*Male*	*Female*	*Total*
Under 5 years	3	2	0	0	5
5 to 14	6	7	1	7	21
15 to 24	2	0	2	2	6
25 to 34	4	5	0	3	12
35 to 44	3	1	2	1	7
45 to 54	6	2	0	0	8
55 to 64	10	3	4	1	18
65 and over	5	6	0	0	11
Totals	39	26	9	14	88

Number of newly reported cases for whom tubercle bacilli have been demonstrated	49
Hospitalized status of tuberculosis cases at the close of the calendar year:	
A. Number of persons hospitalized during 1963 for TB	184
B. Number of tuberculosis patients on chemotherapy at home during 1963	342

Division of Preventable Diseases
February 7, 1964

VENEREAL DISEASE CASES REPORTED BY MONTH, 1963

Month	*Syphilis*	*Gonorrhea*
January	-	68
February	3	37
March	5	39
April	5	39
May	7	55
June	4	41
July	5	74
August	2	54
September	4	71
October	3	80
November	7	53
December	2	54
Total	47	665

North Dakota gonorrhea rate in 1963 is 105.1 per 100,000 population.

North Dakota syphilis rate in 1963 is 7.4 per 100,000 population.

Gonorrhea increased 4.3% in 1963 over 1962.

Syphilis increased 27% in 1963 over 1962.

VENEREAL DISEASE CASES BY MARITAL STATUS AND SEX, 1963

SYPHILIS

	Single		*Married*		*Widowed*		*Divorced*		*Separated*		*Unknown*	
Group	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*
All ages	6	3	10	12	2	2	2	1	1	–	4	4
Under 1	–	–	–	–	–	–	–	–	–	–	–	–
1 to 14	–	–	–	–	–	–	–	–	–	–	–	–
15 to 24	2	1	1	1	–	–	–	–	–	–	–	–
25 to 44	2	2	4	4	–	–	2	–	–	–	1	–
45 to 64	2	–	4	5	1	1	–	1	–	–	–	–
65 and over	–	–	1	1	1	–	–	–	1	–	2	2
Unknown	–	–	–	1	–	1	–	–	–	–	1	2

GONORRHEA

	Single		*Married*		*Widowed*		*Divorced*		*Separated*		*Unknown*	
Group	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*
All ages	236	103	118	109	8	14	3	13	2	7	45	7
1 to 14	–	7						–	–	–	–	–
15 to 24	146	71	32	47	–	2	–	5	1	1	12	–
25 to 44	83	24	72	54	3	8	2	6	1	5	23	4
45 to 64	3	–	12	8	3	3	1	1	–	1	3	–
65 and over	1		1	–		1	–	–	–	–	–	–
Unknown	3	1	1	–	2	–	–	1	–	–	7	3

VENEREAL DISEASES CASES REPORTED BY COUNTY, 1963

County	*Syphilis*	*Gonorrhea*
Adams	2	3
Barnes	1	–
Valley City	2	3
Benson	2	82
Billings	–	–
Bottineau	–	–
Bowman	–	–
Burke	–	–
Burleigh	2	3
Bismarck	4	14
Cass	1	3
Fargo	4	34
Cavalier	–	2
Dickey	–	3
Divide	2	1
Dunn	–	2
Eddy	–	2
Emmons	–	5
Foster	–	1
Golden Valley	–	1
Grand Forks	1	41
Grand Forks	2	34
Grant	–	–
Griggs	–	–
Hettinger	–	–
Kidder	–	2
LaMoure	–	1
Logan	–	–
McHenry	–	3
McIntosh	–	–
McKenzie	–	2
McLean	–	23
Mercer	–	5
Morton	–	13
Mandan	4	14
Mountrail	2	11
Nelson	–	1
Oliver	–	–
Pembina	–	4
Pierce	–	3
Ramsey	–	4
Devils Lake	–	19
Ransom	–	1
Renville	–	2
Richland	–	1
Rolette	2	51
Sargent	1	–
Sheridan	–	–
Sioux	1	98
Slope	–	–
Stark	–	3
Dickinson	1	12
Steele	–	–
Stutsman	5	4
Jamestown	1	4
Towner	–	–
Traill	1	2
Walsh	–	5
Ward	2	59
Minot	4	62
Wells	–	–
Williams	–	7
Williston	–	15
Total	47	665

Committee on Medical Economics

The Committee on Medical Economics has been studying the Relative Value Schedule of the North Dakota State Medical Association for the past two years. It was the purpose of this study to determine whether the schedule, as adopted in October 1958 and revised in March 1962, should be revised further. In the fall of 1962, the various specialty organizations in the state were contacted to suggest changes which should be considered in the schedule.

Early in 1963 we were informed that California was preparing a new fourth edition to their Relative Value Studies, which would probably be finished in the summer of that year. It was the decision of our committee at that time to await the new California study before proceeding further with our revision.

At the close of 1963, California still had not released their last study, and there was now no intimation of when it might be expected. Consequently, our committee decided to proceed without further delay.

The committee has found that although our Relative Value Schedule is still not completely understood by many of the physicians or agencies which use it, the schedule is nevertheless now well accepted. Problems concerned with its use and the interpretation are diminishing as it is put into practice more widely. There seems to be general satisfaction with the utilization of this schedule on the part of the vendors of medical care and also a high degree of acceptance on the part of the physicians of North Dakota.

Most of the agencies with whom the North Dakota State Medical Association has agreements based upon the Relative Value Schedule have expressed concern that any revision of the schedule in which many of the listed procedures would be assigned a new relative value higher than that in the present schedule would necessitate a lowering of the conversion factors. This would be their only protection against an increase in the total cost of medical care.

Inasmuch as it seemed that the schedule was not giving too many problems in its present condition and that too large a change would not be readily acceptable to vendors without a lowering of the conversion factors, the committee attempted to limit changes to only those values which were held to be most flagrantly in need of correction and to include procedures which are new since the development of the last schedule.

Some of the specialty groups appear to have conceived of this as an opportunity to raise their fees and have submitted long lists of procedures with an increase in the relative values. Other groups have submitted schedules of relative values prepared for their specialty by their national association. The committee has had to reject both types of lists, since the values proposed would no longer relate to the remaining portions of the schedule.

Any significant number of changes in relative values which causes a lowering of the conversion factor would give a greater percentage of the vendor's payment to be paid to those more unusual procedures and a lessening of payment for the common minor procedures. This did not appear to be a desirable change.

Consequently, at this time, a major revision of the Relative Value Schedule is no longer being planned. The committee will consider requests for changes in any of the relative values if any of the state organizations concerned with the performance of a procedure inform this committee of their recommendations and can justify to the committee that such a change keeps the relativity of the whole schedule intact.

The committee will continue to evaluate new procedures for inclusion in the schedule and shall assign code numbers and unit values to such procedures.

Aside from its concentration on the Relative Value Schedule, members of the committee have met with the North Dakota State Chapter of the American Physical Therapy Association, the Division of Vocational Rehabilitation, the Public Welfare Board, and the Legislative Research Committee.

There is a growing concern on the part of many state officials over the costs of drugs and hospital and nursing home care. These are problems in which the physician must become vitally interested if we are to maintain our present method of practicing medicine. A visitation to each of the district medical societies by members of the Public Welfare Board staff is being considered. It is hoped that through these visitations, the physicians could be made more aware of the problems facing the state in providing full medical coverage to the indigent and bring about a closer working relationship. The committee hopes that each district will invite such visitation.

Mr. Limond and your chairman attended a conference on "The Extension of Voluntary Health Insurance," sponsored by the Wisconsin Physician's Service in Madison. The purpose of the conference was to bring together all of the forces interested in expanding the breadth and scope of voluntary health insurance.

Preparation is being made for a renegotiation of the Armed Forces medicare program in May of this year.

M. E. NUGENT, M.D., Chairman
V. J. FISCHER, M.D., Vice-Chairman

Committee on Rural and School Health

Your Committee on Rural and School Health submits the following report.

The chairman of your committee was privileged to attend the ninth meeting of the AMA's session on physicians and schools. This was a very informative session, and representatives from all states and the Virgin Islands were present. Much was accomplished at this meeting on a national basis.

I am sorry to state that we have accomplished very little on the state level. A meeting was called in Fargo, North Dakota, in December at the time of the interim council meeting, but unfortunately conditions were such with a raging blizzard we were unable to hold a meeting. It is hoped by the chairman that this committee in the future will show more progress and that we will have something to be proud of to report at our annual meeting.

R. W. MCLEAN, Chairman

REPORTS OF SPECIAL COMMITTEES

Committee on Mental Health

This committee has held one meeting during the past year when on December 13, 1963, it met in Fargo, and because of poor weather conditions a quorum was not present.

It was decided at that time to table Resolution 10 passed by the House of Delegates at Dickinson in May 1963 directing the committee to develop "the most practical method of directing, coordinating, and supervising the state school for retarded children, the state hospital in Jamestown, the Community Mental Health Services, and allied mental health program for the state of North Dakota."

Because of similar work now being carried out by the State Department of Health and Dr. Samuelson's office in planning for mental health programs in the state of North Dakota, it was decided to take no action on this resolution, at least until the results of the health department's mental health surveys are made known. We heard from Dr. Albert Samuelson and Myron Burger, Ph.D., regarding a statewide survey to determine what the communities' needs are for planning and providing mental health services. There was general agreement that the physicians in the state should be interested in this planning and take an active part and express themselves to the regional committees and interviewers regarding their own attitudes on the need for mental health services and how they believe they may be brought into effect in their particular community. It was stressed, as it has been stressed on a national level, that unless the physician takes an active and interested part in such planning, that other personnel of a nonmedical nature, for example the welfare departments, will be leading the way and planning for future services in the mental health field.

The council was approached on the day following the committee meeting to encourage district medical societies to discuss within their groups the planning to be carried out in the mental health field. The various district societies are also being encouraged to form their own mental health committees.

There was also a brief discussion of mental retardation and an expression of belief that efforts should be made to coordinate planning in mental retardation with mental health planning and that these 2 fields not be separated because of the sparsity of population within our state and the frequent overlapping of the talents of people who are working in one field or the other, as well as the overemphasis of one to the expense of the other on some occasions.

In February of 1964 your chairman, along with Dr. Samuelson and Mr. Lyle Limond, had the privilege of attending the tenth annual Conference on Mental Health, of mental health representatives of state medical associations, in Chicago. At this time, reports of various committees of the American Medical Association, active in mental health, were presented on various mental health problems, and stress was placed on handling psychiatric emergencies in various regions throughout the country. Regional meetings were held to discuss mental healh problems peculiar to the various areas, and presentations were made of the role of the state medical society in mental health programs. One of the important discussions at this meeting came about in information presented by Dr. Howard P. Rome of Rochester who spoke of the resistance to the mental health movement in terms of the fears and fantasies that involve any change in status in the present system of operations of our mental health program as with other "new" programs. There is fear of a loss of control by groups that are currently in power. There are also fears that any new innovations are going to go awry and that no one likes to take the responsibility for what may go wrong.

The committee will meet once again at the state medical association meeting in Minot.

A. C. KOHLMEYER, M.D., Chairman

Committee on Cancer

A formal meeting of the Cancer Committee of the North Dakota State Medical Association was held in conjunction with the state medical meeting in Dickinson, May 1963.

Three activities were discussed: recent cancer quackery legislation, cancer and smoking, and a discussion of a recent report published by the American Cancer Society which compared the incidence of cancer of the uterus in North Dakota, South Dakota, Montana, and Minnesota. It was surprising to note that of these 4 states, North Dakota had the highest incidence per capita of cancer of the uterus. Although a great deal has been done in the past by means of cancer speakers, cancer caravans, and local discussions on cancer of the uterus, it was decided to continue our efforts on methods of diagnosis of early cancer of the uterus and cervix. Dr. Nelson of Grand Forks informed us that the Grand Forks Medical Society had sent a booklet on early diagnosis of cancer of the uterus and cervix to the members of the Grand Forks Medical Society. It was suggested that we attempt to send some type of information to all the doctors in North Dakota which would increase their ability to diagnose early cancer of the uterus and cervix. A guide entitled "Diagnosis and Treatment of Cancer of the Cervix," published by members of the Central Association of Obstetricians and Gynecologists, was received and reviewed by each member of this committee during the fall and winter. With exception of a few minor criticisms, the majority concurred that we send this brochure to the medical profession. Sometime in the future you will receive this, and we urge you to read every word of it carefully. Most likely the contents will reveal nothing new to you, but on the other hand, it will make a well-worthwhile review of the subject.

By this time, all of you have, no doubt, read the report of the certain Surgeon General on cancer and smoking. For years we have been waiting for some type of report similar to this from an authoritative body. This decision was made by a group of specialists, well picked in this field, and certainly should carry some weight. What impact this will have on the public in smoking is anybody's guess. I was interested in noting in a recent article that, at the present time, 40% of the doctors in the United States who were cigarette smokers have now discontinued since this report. It has always been a mystery to me why the American Medical Association, the voice of the doctor, has never come out flat-footed against smoking. We feel our delegate to the American Medical Association should present a strong plea at the next general session to urge this body to vigorously support any efforts on the part of individuals, public health agencies, or volunteer health organizations in their efforts to curb smoking.

Likewise, the Krebiozen report was not a surprise to anyone. This drug justly deserves the fate it received and now is officially listed as another quack product. It was pathetic to see such a prominent physiologist as Dr. Ivy fall under the wiles of Dr. Durovik and his cohorts, who are now facing the federal courts for illegal distribution of medicine.

Your chairman attended the interim meeting of the American Cancer Society in Florida during July 1963 and the annual meeting of the American Cancer Society in New York last October 1963. The bulk of the funds raised by this organization continue to be spent on cancer research, the demand for research being far in excess of funds. The American Cancer Society continues to grow, both in its research program and scientific education and education of the public. Any efforts our state organization can give to support this worthy cause should be put forth by all our members. We are represented by Dr. Leonard Larson of Bismarck, North Dakota, who will soon be president, and by Dr. O. W. Johnson of Rugby, North Dakota, who was state delegate and member of the Board of Directors.

C. M. Lund, M.D., Chairman

Committee on Maternal and Child Welfare

The members of the committee are as follows:

ROBERT E. LUCY, M.D., Chairman	Jamestown
L. G. PRAY, M.D.	Fargo
CARL BAUMGARTNER, M.D.	Bismarck
R. T. GAMMELL, M.D.	Kenmare
J. W. JANSONIUS, M.D.	Jamestown
W. GENE GARRETT, M.D.	Bismarck
JOHN GILLAM, M.D.	Fargo
BLAINE AMIDON, M.D.	Fargo
RALPH DUKART, M.D.	Dickinson
THOMAS SCHAFER, M.D.	Grand Forks
ALICE H. PETERSON, M.D.	Bismarck

Two meetings of the Maternal and Child Welfare Committee of the North Dakota State Medical Association were held this year, the first one in Fargo on Saturday, September 21, 1963, and the second in Jamestown on February 8, 1964.

The following recommendations have been made by the committee:

1. The committee suggested that the Division of Maternal and Child Health of the North Dakota State Health Department prepare a questionnaire to be sent to each hospital where obstetrical cases are delivered. The following information would be obtained: (a) date of the last normal menstrual period, (b) date of delivery, (c) date patient first seen by physician, (d) number of visits to physician.

The information gained is to be used for the encouragement of early care in all maternity cases.

2. Discussion was held on proposed recommendations for immunization, and the committee unanimously concluded that the recommendations of the American Academy of Pediatrics should be followed in this matter.

3. Dr. Rand, superintendent of the state hospital at Grafton, was a guest, and a discussion was held on the proposed mental health questionnaire which is to be sent to all obstetricians, pediatricians, health officers, and some general practitioners. The majority of the committee felt that this would be a valuable study, and the questionnaire was approved in essence, but some members felt that it might be shortened.

4. After listening to a discussion from James R. Amos, M.D., state health officer, the committee approved a program presented whereby with each birth certificate sent to parents would be included a temporary immunization card. A cover letter would also accompany the certificate advising the child be taken to the family doctor for his 6-week checkup and subsequent health checkups. The physician would then complete the card as to the dates of the immunizations done.

5. The committee approved the suggestion that the State Department of Health provide low phenylalanine diet to all cases of phenylketonuria for those families who are medically indigent.

6. The committee recommended that the heel-prick test should be continued, since the Maternal and Child Health Division is continuing to offer this service. The doctors would do a follow-up urine test in the clinic or office. The committee further suggested that letters to encourage the parents to take the infants back to the doctors for the 6-week checkup should be given them at time of the hospital dismissal.

Robert E. Lucy, M.D., Chairman

Committee on Diabetes

The Committee on Diabetes, initiated by Dr. Leonard Larson of Bismarck, has continued its primary function to encourage and coordinate annual diabetes detection drives throughout the state under sponsorship of constituent local medical societies. This function is a cooperative effort in support of National Diabetes Week, sponsored in November each year by the Committee on Detection and Education of the American Diabetes Association, Inc. Increasing participation is in evidence among district medical societies throughout the nation. Last year, well over 1,000 societies held individual detection drives.

The tragic death of President Kennedy on November 22 obviously disrupted plans for diabetes detection drives which were held throughout the nation during November 1963. For example, the diabetes detection drive that was organized in the Drake, North Dakota, area by Dr. B. Z. Hordinsky was not very successful for the above reason, despite a considerable amount of careful planning. Nevertheless, 271 people were checked, and 1 new case of diabetes was discovered.

In Minot, North Dakota, a diabetes detection drive was carried out under the direction of Dr. Kenneth N. Amstutz, and some 8,000 Drey-Paks were distributed, resulting in 1,072 actual tests. There were 28 positive tests. Two previously unknown cases of diabetes were discovered, among 19 cases who have been adequately followed up by their respective physicians. The remaining positive tests have not been completely followed up because of difficulty in contacting testees. The North Dakota State Health Department cooperated in contributing $50 toward the overall cost of the Minot Detection Drive which was carried out through the cooperative effort of the Minot Junior Chamber of Commerce and the Northwest District Medical Society under the chairmanship of Dr. Amstutz. President Kennedy's assassination was a strong factor in reducing the actual yield to 1,000 tests after distributing enough materials for 8,000 tests. The area covered in the Minot drive was Ward County, Minot, Kenmare, Mohall, and Rugby.

Both Drs. Amstutz and Hordinsky and their respective committees are to be commended for carrying out their detection programs under difficult conditions. It was Dr. Amstutz's opinion that the older age groups in whom diabetes is obviously more prevalent are paradoxically less apt to participate adequately in detection drives. Greater effort should be directed toward this group in particular.

It has been repeatedly emphasized that diabetes detection drives which are carried out by respective medical societies as a free service to the public have greatly enhanced public relations with the medical profession throughout the nation. The Committee on Diabetes of the North Dakota State Medical Association sincerely hopes that other constituent medical societies of the state will be inspired to execute a detection program in 1964.

As chairman of the state Committee on Diabetes, I would like to express my appreciation for the continued excellent cooperation from committee members throughout the year.

E. A. Haunz, M.D., Chairman

Committee on Crippled Children

A meeting of the committee was held at 9:50 a.m. on December 14, 1963, in the East Room of the Gardner Hotel in Fargo, North Dakota. Present were Chairman Paul Johnson, M.D., Drs. B. A. Mazur, Norman Ordahl, George Hart, and D. T. Lindsay. Others present were Dr. James Little, Mr. Orville Hawes, Mr. T. N. Tangedahl, and Mr. Daniel Buchanan.

The meeting was called to order by the chairman, and it was noted that a quorum of committee members was not present.

As the first order of business, the chairman called on Mr. Orville Hawes, executive director, North Dakota Society for Crippled Children and Adults.

Mr. Hawes began by briefly sketching a program which his organization hoped to carry out on a pilot basis in 1964. The program would consist of special work at Camp Grassick for children with reading problems and who may possibly have brain damage. According to Hawes, approximately 6 children from North Dakota were to be very carefully selected to participate. Mr. Hawes also assured the committee that work done with the 6 children would be supervised by an adequately prepared staff

In discussing the pilot program of work with children having reading difficulties, the committee asked Mr. Hawes to be sure that such a program would not antagonize or be in conflict with other such programs already in progress.

Dr. Hart then moved that the pilot program of work with children's reading problems be undertaken for the first year and that the North Dakota Society for Crippled Children and Adults be requested to summarize its results for the committee in December 1964. The motion was seconded by Dr. Lindsay and carried.

There was also some committee discussion of the feasibility of the North Dakota Society for Crippled Children and Adults eventually employing a physical therapist to travel around the state handling follow-up work with individuals who may need his services. Mr. Hawes emphasized that such a proposition was only in the idea stages and that he was desirous of a sampling of opinion from the committee. No action was taken on that particular matter.

Committee attention was next directed to a motion made by James Little, M.D., at the second session of the House of Delegates, meeting at Dickinson on May 5, 1963. The motion and house discussion are as follows:

> Dr. Little: In view of the fact that only board-certified physicians are eligible to care for children under the North Dakota Public Welfare Board Division of Crippled Children's Services, I make a motion that the Committee on Crippled Children meet with the North Dakota Public Welfare Board in an attempt to get every licensed physician in the state eligible to care for children under the Crippled Children's Service. I further move that the Committee on Crippled Children review with the Public Welfare Board its policy of referral of patients needing the services of medical and surgical specialists; in particular, letting the referring physician send the patients to the specialist of his and the patient's choice and not one picked by the welfare board's division of crippled children.
>
> Dr. Schneider: I second the motion.
>
> Dr. Vinje: I think this problem has been brought up before, and, the reason things are handled the way it is, there are federal funds involved, and there are certain qualifications required to perform this function. Our approach would have to go further than just within the state itself.
>
> Motion passed.

At the request of the chairman, Dr. Little explained the intent of his motion in the House of Delegates. His principal points were:

a. That the CCS program be opened to all licensed physicians in the state, as is true for other medical programs administered by the Public Welfare Board,

b. And that family physicians who feel they can handle certain cases be allowed to do so by CCS, in preference to a specialist.

General committee discussion followed Dr. Little's remarks. It was brought out in discussion that CCS was originally a program of orthopedic services, set up to provide the services of specialists for limited types of services and to include catastrophic coverage. Dr. Johnson noted that when CCS was started, federal restrictions required that "the best available care" be provided to recipients. He continued by saying the committee felt then, as now, that best care could be assured through the use of specialists who were board-eligible or board-certified.

The committee also heard from Mr. T. N. Tangedahl, director, Division of Children and Youth, Public Welfare Board of North Dakota. He made the following points in explaining the CCS program, as well as policies used in administering it:

a. CCS is handled nationally by the Children's Bureau and receives a flat appropriation, based on state matching funds. There are no county funds involved.

b. It is a specialized program, providing a resource to counties by furnishing highly technical and costly services to persons in their jurisdictions.

c. The patient and the referring family physician may pick the specialist of their choice. CCS will also pay for follow-up care provided to the patient by his family doctor.

d. CCS requires that out-of-state referrals be made by a North Dakota specialist.

Mr. Tangedahl also furnished committee members with memoranda giving a thorough discussion of experience with CCS.

There was general agreement that difficulties with CCS, as well as other programs, are sometimes the result of misunderstanding and conflicts between physicians and county welfare board directors, rather than faults of the programs themselves.

As an outgrowth of the committee's rather extensive review of CCS and its policies, Dr. Ordahl moved that the Committee on Crippled Children recommend a program of education on CCS for physicians to be implemented by the Division of Children and Youth of the Public Welfare Board. It was seconded by Dr. Lindsay and carried.

There being no further business, the meeting was adjourned at 11:50 A.M.

PAUL JOHNSON, M.D., Chairman

Committee on Foreign Trained Physicians

The Educational Council for Foreign Medical Graduates, established in 1957, continues to function as a screening agent for foreign medical graduates, and it certifies only that a foreign graduate appears to have had the same amount of medical education as a graduate of a U.S. medical school. Until this year, 2 types of certificates were issued, a standard one awarded to applicants making a grade of 75% or better and a temporary one awarded to applicants making a grade of 70 to 75%. This latter group, originally developed by the American Hospital Association to provide a sufficient number of interns, has now been discontinued, and only the standard type is granted. This is a constructive change, as most state boards have never accepted this below-average group to their licensure examinations. *It must be emphasized again that this examination is not intended to determine fitness to practice medicine,* and while the questions have been prepared by the National Board of Medical Examiners and are of the multiple choice type, it should be understood that the more difficult questions have been eliminated by a special committee of this board so that actually the examination is less difficult than those given to U.S. graduates. In addition, it is given in one day, whereas the regular examination requires three days.

The E.C.F.M.G. certificate has been of tremendous help to state licensure boards, and it is a requisite for admission to most state board examinations. In a few states, their medical practice act or the rules and regulations of the board are such that they cannot recognize this certificate or admit foreign medical graduates to their examination.

Since 1961 over 80 centers have been established in countries outside of the U.S. where this examination is given, and by this method those applicants with substandard education are eliminated and do not spend unnecessary time and money in making a trip to the U.S.

During 1963, 6,054 applicants wrote the E.C.F.M.G. examinations in the U.S. and 13,076 in foreign countries. Of those writing in the U.S., 31.3% obtained a grade of 75% or better, compared with 32% of those writing in foreign countries. These numbers are of considerable size when we consider U.S. medical schools graduate about 8,000 physicians each year. In the period from 1960 through 1963, 37,348 foreign graduates wrote the E.C.F.M.G. examinations in the U.S. and 31,289 in centers outside the U.S., a total of 68,637. The failure rate of this large group was about 62%. It furnishes evidence as to how determined foreign graduates are to move to the U.S.

During the past year, 2,960 foreign graduates were examined by U.S. licensing boards; of these, 1,980 passed, and 981 failed—a mortality rate of 33%.

During the period 1946 through 1962, 17,070 foreign graduates were licensed by examination and 3,411 by reciprocity—a total of 20,481. During this same period, state licenses were granted as follows:

New York	4,370
Illinois	2,042
Ohio	1,935
California	1,291
Virginia	1,244
New Jersey	1,157
Connecticut	1,021

At the present time, 23% of all interns and residents serving in U.S. hospitals are foreign graduates. There are 40,936 (U.S. and foreign) medical graduate trainees in the U.S.—22% interns, 71% residents, and 7% miscellaneous. Hospitals with approved programs number 1,550. They represent 22% of all U.S. hospitals and 48% of all hospital beds. There are 942 medical students from foreign countries enrolled as students in U.S. medical schools.

At the present time, there are 43 foreign medical graduates licensed and practicing in North Dakota; 28 in the specialties and 15 in general practice. During the past year, 3 foreign graduates were licensed in North Dakota with no failures. (In all of the above figures, Canadian graduates are not considered as foreigners.)

C. J. GLASPEL, M.D., Chairman

Committee on AMA-ERF Program

> Since March 1962 the AMA-ERF Medical Education Loan Guarantee Program has secured more than 11,500 commercial bank loans for medical students, interns, and residents who needed additional money during their training period. In principal amount, nearly $14 million has been loaned.
>
> Notwithstanding the fact that all qualified applicants have received loans, the Congress has considered and passed the Health Professions Educational Assistance Act of 1963 (PL 88-129) which, in part, will provide subsidized loans for students of medicine, dentistry, and osteopathy. Many questions are being raised about the operation and probable relationship between the AMA-ERF program and the federal program.

The preceding 2 paragraphs are the introduction of a special report published in the *Journal of the American Medical Association,* vol. 187, No. 1, pp. 47-51, 1964. You are urged to read it that you may understand the features and working of each plan. It is again evidence of government encroachment in a field where private resources have demonstrated their adequacy. The effect on our own program remains to be seen.

AMA-ERF, of course, intends to maintain its loan program as a ready and convenient resource for any medical student, intern, or resident who meets the minimal qualifications. It hopes to demonstrate, through continued experience, that private voluntary contributors and organized medicine are increasingly capable of meeting the borrowing needs of medical trainees in the tradition of self-help.

Thirty-three loans have been made to North Dakota students in the past two years, with a total principal of $33,500. Donations from our North Dakota membership and the assistance of a faithful auxiliary have maintained our contributions at a good level. We are meeting our responsibility.

W. E. G. LANCASTER, M.D., Chairman

Committee on Nursing Education

No formal committee meetings were held by this committee during the past calendar year nor have any committee meetings been held in any of the three years that I have been chairman of this particular committee. I have written the state department of nursing and various other nursing organizations informing them of the presence of our liaison committee. I have received information from the AMA national headquarters in regard to matters of nursing education, but no problems have apparently arisen in this field that have been referred to this committee.

KEITH G. FOSTER, M.D., Chairman

Liaison Officer to the North Dakota State Bar Association

No formal contact was made with the North Dakota State Bar Association, and no specific problems were brought to the attention of this representative. It is noted that a medical-legal institute will be sponsored by the American Medical Association in Las Vegas, Nevada, in March 1965, and it is trusted that some members of the association will find it possible to attend this meeting.

It is further hoped that additional medical-legal institutes of interest to all parties concerned can be developed for future programs here in North Dakota.

PAUL L. JOHNSON, M.D., Representative

Committee on Pharmacy

The first Congress on Medicine and Pharmacy was held in Chicago, March 12 and 13, 1964. Approximately 350 persons registered for the congress which was held under the auspices of the Commission on Medicine and Pharmacy. The commission is made up of representatives from the American Medical Association, the American Pharmaceutical Association, and the National Association of Retail Druggists.

In his opening address, Rome A. Betts, president of the National Health Council, among other things, expressed his hope that there will be a "speedy settlement of relatively minor interprofessional differences which are wasteful of time and energy that should be invested in meeting our major responsibilities."

Papers and panel discussions covered such topics as interprofessional relations, ethical and legal responsibilities in medicine and pharmacy, physician owned or controlled pharmacies, renewing of prescriptions, and economics of medical care.

Many speakers and panelists talked with "tongue-in-cheek" regarding possible impending federal legislation. Dr. George Fister stressed the need for active, effective liaison programs in every state. He stated that the joint Commission on Medicine and Pharmacy can provide leadership and guidance on the national level, but maximum results can be achieved only through state and local cooperation. Representatives to this congress from North Dakota included Lyle Limond, Mr. Joel S. Nelson, president, North Dakota Pharmaceutical Association, and myself. We all left the meeting feeling that North Dakota should institute a much more active interprofessional liaison committee on pharmacy.

O. A. SEDLAK, M.D., Chairman

Liaison Committee to the North Dakota State Dental Association

The following is the report of the liaison officer to the North Dakota State Dental Association.

Your liaison officer met with the president of the North Dakota State Dental Association on several occasions pursuant to the law sponsored by our association in the last legislature, which limited cancer examinations to the medical profession.

Both the North Dakota State Dental Association and their national association were very distressed by this legislation, feeling that the dental profession had a very definite place in the early diagnosis of oral cancer.

The North Dakota State Dental Association is very anxious to have this law amended permitting dentists to participate in the use of oral cytology.

Your liaison officer respectfully suggests that this matter be turned over to our Legislative Committee and urges them to work with the dental society in the amendment of this law.

DAVID G. JAEHNING, M.D., Representative

Report of Representative to Medical Center Advisory Council

The Medical Center Advisory Council is now composed of the following representing various organizations and segments of the population of the state.

Dean of medical school; director, medical center T. H. HARWOOD, M.D.	Grand Forks
State health officer JAMES R. AMOS, M.D.	Bismarck
Public at large THOMAS L. DEGNAN	Grand Forks
Chairman of state board of administration HOWARD HENRY	Bismarck
Labor VIRGIL JOHNSON	Fargo
State board of higher education FRED ORTH	Grand Forks
Agriculture MRS. GILMAN PETERSON	New England
State welfare board MRS. EARL SHAW	Fargo
State hospital association HOWARD SIMINGSON	Minot
State medical association PHILIP H. WOUTAT, M.D.	Grand Forks

In the fall of 1963, 44 freshmen were admitted. There were 47 in the sophomore class, 1 having transferred into this class from the graduate school.

By May of 1963 all of last year's graduates had been successfully transferred as follows: 6 to Northwestern, 5 to Pennsylvania, 5 to Minnesota, 4 to Marquette, 4 to Wisconsin, 3 to Temple, 2 to Harvard, 2 to Utah, 2 to Iowa, and 1 each to Bowman Gray, McGill, Kansas, Tulane, Colorado, Rochester, Washington, and Nebraska.

No difficulty is anticipated in transferring the 1964 graduating class.

Faculty. The 1963-1964 year started with a number of replacements and a number of additions.

Among the latter are 2 members added to the Department of Pathology which also now has 4 residents and is at full strength.

Dr. Potter must retire at the end of this year as head of the Department of Physiology and Pharmacology. Efforts are being made to obtain a new head of this department before the opening of the 1964-1965 term.

Maintenance of adequate salaries continues to be somewhat of a problem. Review of the present salary scale indicates we pay about the middle or slightly below the national average of medical school salaries. A number of fringe benefits have been added which give promise of making opportunities here more attractive. The university is now participating in the Teachers Insurance and Annuity Association (TIAA) program. Under this program the university matches 5% of the faculty member's salary as a contribution to a retirement program. In addition to this, in November of 1963 a very attractive major medical and life insurance program was instituted. This and the TIAA program for retirement should be an attractive fringe benefit.

Student loan fund. This program, financed through medical center mill levy funds, continues to be in great demand, but apparently it is being modified somewhat by the AMA and other programs. During the past five years, $258,000 has been loaned to 85 different students. Twenty-six of these have returned to North Dakota, 16 of them to towns of 3,000 or less, but 3 of these have already left. In addition, 23 dental students have been loaned a total of $79,400.

While it is still undetermined as to whether or not this program is of aid in attracting our students back to the state to practice, the following figures compiled in the dean's office may be of interest.

PHYSICIANS IN THE STATE

	1958	*1963*	*Gain*
Total physicians in North Dakota	487	520	33
UND Medical School graduates	138	174	36
	28%	33%	5%

As above mentioned, the significance of this is not determined as yet.

Certain features of the AMA loans are more attractive than ours, among them, ease of obtaining the loans and more attractive terms.

Rehabilitation unit. The amount of work done in this unit is increasing but very slowly. During the last year, 201 patients received services, of which 185 were new admissions. The inpatient service has increased slowly, but still the largest number present at any one time has been 14. As in the past, physicians refer 72% of the patients; vocational rehabilitation, 19%; Workmen's Compensation, 5%; self-referrals, 2%; Public Welfare Board, 1%; and so on.

The quality of the work being done is excellent, and the main problem with this unit is the shortage of patients.

An arrangement has recently been completed with Dr. Miland Knapp, physician specialist in physical medicine from Minneapolis, to attend as a consultant once a month until July 1964, at which time the desirability of continuing such a program will be reevaluated.

Psychiatric training program. There are at present 2 physicians in training under phychiatric training grants who will complete their training in July and September of 1965 and are obligated to return to the state hospital.

At the January 1964 meeting, recommendation for a grant for a North Dakota State Hospital psychologist to take further study toward a Ph.D. degree was made.

Blood bank. It has been increasingly difficult for the blood bank to maintain adequate stocks of blood to handle all situations, so after numerous discussions over the years regarding the advisability of continuing this service, it was decided at the January 1964 meeting to discontinue the blood bank service about July of 1964 or as near that date as is feasible.

Arrangements are being made for the Rh testing portion of this program to be performed by another agency, probably the State Department of Health laboratories. When it becomes necessary for walking blood bank programs to be retested or expanded, other arrangements can be made for the typing of the various communities.

Arrangements are being made with the Southwest Blood Bank to supply the Grand Forks hospitals and other area hospitals now supplied by the medical center blood bank.

The technician training portion of the blood bank is also being taken up by other departments in the school so will not be disturbed.

Nursing school. This school has finally been given full accreditation. This has been long delayed, considerable of the delay being due to the problems of obtaining adequate teaching personnel and the necessity of carrying on certain portions of the teaching program in hospitals around the state and out of the state. These problems have finally been resolved, and nursing training leading to a degree is finally fully accredited.

P. H. Woutat, M.D., Representative

Governor's Health Planning Committee

Two meetings were held of this committee in the year 1963, the first of these on June 11, 1963, at which time more definite standards were formulated for allocation of Hill-Burton funds to hospitals and nursing homes. The meeting for allocation of these funds was held in the Capitol building on November 26. At this time, because of previous commitments in which the funds had been obligated, there was a relatively small amount available for allocations, namely, $660,000. This was ultimately allocated to the St. Joseph's Hospital at Dickinson, North Dakota, as this unit was in need of upgrading due to marked obsolescence of many of the hospital facilities. The Hill-Burton funds expire as of June 30, 1964, and unless further legislation is enacted they will become inoperative. However, there is every indication that new legislation perhaps somewhat broader in scope and leaning more heavily toward hospital remodeling will be enacted. This legislation is already before the members of Congress at the present time, but definite action has not been taken.

G. Alfred Dodds, M.D., Member

Committee on Emergency Medical Service

The Committee on Emergency Medical Service met in Fargo on December 15, 1963, at the Hotel Gardner with the following members present: R. E. Mahowald, M.D., chairman; D. T. Lindsay, M.D.; K. W. Kihle, M.D.; and Paul Beithon, M.D. Others present were A. R. Gilsdorf, M.D.; J. R. Amos, M.D.; Mr. Robert Freise; and Mr. Daniel Buchanan. A quorum of members was not present.

Dr. Mahowald opened the meeting by reading the minutes of the committee's meeting of December 7, 1962. He continued by summarizing his recommendations to the House of Delegates in May 1963. In reporting to the house, Dr. Mahowald had suggested the committee be abolished unless greater interest in its work be evidenced among physicians, particularly those on the committee. The committee is a special committee, appointed at the discretion of the president. Dr. Mahowald stated that he discussed continuing the committee with Dr. Gilsdorf and that a new committee for 1963-64 had been appointed. At the conclusion of Dr. Mahowald's opening remarks, the minutes were approved as read.

Mr. Robert Freise, health mobilization coordinator, state Department of Health, was called on next to summarize the progress to date in implementing the Medical Self-Help Program in North Dakota. The following points were brought out in Mr. Freise's remarks:

(a) Medical self-help began with field tests in 1962. The course was found popular, and after minor revisions in the material, kits to teach the course were made available in quantity.

(b) There presently are 154 medical self-help kits distributed throughout North Dakota. As of September 1963, 30 high schools in the state were teaching the course.

(c) Best estimates to date indicate approximately 2,303 persons have been trained in medical self-help through some 118 classes.

(d) Cooperation from physicians in the state has been excellent, and the course is materially improved when a physician is present for part, or all, of the lessons.

(e) About the only real difficulty being encountered is with the Department of Public Instruction. The department had planned to put the course into the schools but has withdrawn its approval of the course, largely because of the lesson on emergency childbirth.

Following extensive discussion of the Medical Self-Help Program, the committee thought it would be helpful to write to the Department of Public Instruction to ask its cooperation and suggestions in making medical self-help training available in the schools. The chairman was requested to write the necessary letter with a copy to go to the North Dakota State Medical Association and the state Public Health Department.

Civil Defense Emergency hospitals in the state of North Dakota were discussed briefly. It was noted that at the present time there are 12 CDEHs prepositioned across the state, as well as one training unit at Bismarck. Mr. Freise told the committee that the hospitals had been recently inspected by federal inspectors and that deficiencies noted were being corrected by his office. He also reminded those present that CDEHs are the property of the federal government but loaned to states. There was general discussion of problems encountered in carrying out training exercises with the hospitals (CDEHs) and the hope expressed that more such training exercises would be carried out in the near future.

Dr. Mahowald spoke briefly about the Medical Education for National Defense (MEND) program. It was developed, he said, to acquaint students and faculty at medical schools with the principles of the medical aspects of civil defense. The chairman remarked that the medical school at Grand Forks was doing about as well with MEND as most other states in the region and was teaching medical self-help to the sophomore students. Medical students at the UND, it was reported, had also participated in an exercise with a civil defense emergency hospital in the spring of 1963 at Grand Forks. It is further anticipated this will be repeated annually.

Committee attention next turned to the Health Mobilization Stateline Training Course, scheduled for May 12 and 13, 1964, in Bismarck. The course is designed to provide medical and paramedical personnel with an orientation to the several aspects of disaster and mass casualty care and the role which they will play in such an event. Dr. Mahowald reviewed the tentative program which he had helped plan and asked the committee to plan to attend the program while providing the stimulus for other physicians to attend as well. The committee decided to assume that responsibility.

Before adjournment, there was informal discussion of the statewide radio hookup for civil defense, the problem of involving more persons in civil defense activities, and the difficulties encountered in keeping people's interest in areas related to civil defense, both medical and otherwise.

Ralph E. Mahowald, M.D., Chairman

Advisory Committee to the Multiple Sclerosis Society

There is no report from this committee for the past year, inasmuch as no meetings were held during 1963.

Robert R. Ivers, M.D., Chairman

Report of the Delegate to the American Medical Association

The 1963 annual session of the AMA was held in Atlantic City in June and the clinical session in Portland in December. The business of the House of Delegates of the AMA was, as usual, mostly concerned with the ever-increasing and ever-perplexing socioeconomic, legislative, educational, and health matters that involve the American physician and his patient. The House of Delegates of the AMA, I feel, reflects accurately the "collective thinking" of its constituent societies. The deliberations in reference committees are well attended, and participation by delegates and nondelegate members of the AMA is keen, far-sighted, and completely dedicated to the overall health of the American people. That there is a divergence of opinion on many matters is admitted, but one of the great strengths of the AMA is that all physicians are entitled and, indeed, encouraged to express their thinking in committee hearings. The forthcoming recommendations of the committees are acted upon by a representative house and most often then implemented by the recently enlarged (12) Board of Trustees of the AMA. I continue to be amazed at the volume of material and subjects considered by each House of Delegates and the facility with which the Board of Trustees and staff of the AMA implement the decisions of the house.

All physicians are acutely aware of the "alien forces" painstakingly working to destroy the free practice medicine as we know it. The House of Delegates of the AMA remains adamant in its opposition to proposals of the planners and political opportunists who are dedicated to the destruction of medicine as a free institution as a means of gaining economic and political power over the American people. Aside from the threat of King-Anderson type legislation, a more subtle threat to free medicine comes from those who maintain that consumers, third party payers, and social welfare groups should be able to set up rules under which "quality medical care" and "efficient utilization of services" can be better ministered. These planners are able to widely publicize their critical judgment of medical practice and the "selfishly autocratic A.M.D." Therefore, it is imperative that the medical profession effectively counteract such back-door compromising of the free practice of medicine. The majority of people planning regimented medical practice is made up from the ranks of medical school faculties, governmental services, and labor groups—mostly nonpracticing physicians—together with other nonmedical personnel in related fields. Repeatedly, it has been emphasized that there is a crying need for practicing physicians to improve communications with these people. But, even before this, we must upgrade communications between ourselves. Now, as never before, we are each obligated to waive and minimize any differences between or within regions, specialties, or organizations and to stand together on the fundamental principles of medical care and medical practice. To stand firmly united is a source of strength to all our members and our allies and a deterrent to our foes. With unity and loyalty within the profession itself, we will find that the American Medical Association has the necessary vitality and strength and the opportunity to serve as a nationwide forum for all allied health groups and for all who are sincerely dedicated to improving the nation's health.

The proceedings of the House of Delegates, Board of Trustees, and standing and ad hoc committee reports are accurately reported in the J.A.M.A. and, more briefly, in the AMA News. It would seem redundant to recount such here. I would strongly urge that our physician membership be encouraged to read these summaries—more especially our state association officers, delegates, and county society officers. That Dr. Edward R. Annis has distinguished himself during his term as president of the AMA is well recognized. Dr. Norman Welch of Boston will succeed him in June 1964.

It is impossible for your delegate to attend all reference committee hearings, and I would like to thank all of our North Dakota delegation who are so helpful at these meetings—Dr. Willard Wright who chairs the Council on Medical Services and whose advice is invaluable—Dr. Robert Painter, my alternate, who is most capable and faithful—Dr. Amos Gilsdorf, our state president, for his support and encouragement—and Lyle and Dan for their many considerations.

THOMAS E. PEDERSON, M.D., Delegate

Report of the Representative to the Crippled Children's Services Division, Public Welfare Board

The above group met on November 2, 1963, at the state capitol building. Members present were as follows: Drs. James R. Amos, Ralph J. Dunnigan, W. G. Garrett, Duane Nagle, Norman B. Ordahl, and Donald E. Skjei. Public welfare staff present were Dr. P. W. Freise, Leslie O. Ovre, Gottfried J. Kuhn, Thorfin N. Tangedal, and Margaret E. Lister. The items on the agenda discussed were as follows:

Treatment of strabismus. Question was raised whether Crippled Children's Service participation and treatment of strabismus should be limited to surgery and glasses and not include the provision of lesser items, such as occluders, red and green lenses, orthopics, and so on. It was the decision of the group that the participation in the provision of the lesser items would not be included in crippled children's services. It was also suggested that if the use of these items were indicated, that a way should be left to reconsider the decision.

Review of charges of scoliosis X-rays for patients referred out of state. It was brought to the attention of the council that the present arrangements with Dr. John Moe of Minneapolis included an allowance of $25 taken for X-rays and evaluation of scoliosis. Occasionally, extra films are taken and the bills have been approximately $45 with this extra radiological service. Dr. Moe suggested that some elasticity in the schedule of charges for X-rays should be considered. It was decided by the council that the matter of X-ray charges would be left to the discretion of Dr. Moe, and it was felt that he would not take advantage of such an arrangement.

Physicians authorized to do crippled children's service work. Mr. Tangedal brought several questions to the attention of the board. (1) Every physician in North Dakota should be authorized to do Crippled Children's work and (2) there be unlimited choice of specialists including out-of-state specialists.

These 2 points had been prompted by a resolution of the North Dakota State Medical Society and had been referred to the Crippled Children's Committee of the North Dakota Medical Association for consideration. Dr. Skjei pointed out that the principle or policy of free choice of authorized specialists had not always been carried out, as the parents had received letters informing them to bring their child to a particular doctor for treatment. He stated that general practitioners in general do not know that they can provide follow-up care on patients under Crippled Children's Service program at the discretion of the treating specialist. He suggested that Crippled Children's Service direct a letter to the general practitioners giving them this information. It was pointed out that there should be no interference between the referring physician and the parents in a selection of a specialist and that general practitioners would not object to limiting their referrals to authorized physicians in North Dakota. A general discussion was carried out by the members in regard to the different points. It was noted by Dr. Garrett and Dr. Dunnigan that the Crippled Children's Services needs to inform the specialists that they can refer patients back to the general practitioner for care under Crippled Children's Services sponsorship. Mr. Tangedal stressed that it has not been the intent of welfare to enter into the choice of physicians, but such may have been the outgrowth of field clinics and also the desire on the part of some parents to shop for additional medical opinions. Mr. Ovre suggested this point by stating, "Welfare does not refer patients anyplace." In this same connection, the matter of change of physicians was suggested and that Crippled Children's Services policy allows for such when requested by either the family physician or the parents of the child involved. A rather detailed discussion of out-of-state referrals was carried out. Points brought out were that with in-state referrals the Crippled Children's Services has some control of the fees, whereas, out-of-state referrals limit this control. Dr. Skjei indicated that he thought the matter on referrals could be facilitated if the Crippled Children's Services would direct a letter to the general practitioners in the states, explaining the policy of referral to in-state specialists and that referrals to out-of-state physicians must be made by one of the authorized in-state specialists. The matter of economics could be brought into this letter, and reference could be made to the fact that treatment by out-of-state physicians is more costly to the program. Drs. Garrett, Ordahl, and Dunnigan indicated that they felt such a letter would be advisable and, at the same time, reference could be made to the fact that both referral to the general practitioner and referral to an out-of-state physician are determined by an authorized North Dakota specialist. Both Dr. Dunnigan and Dr. Ordahl indicated that such an arrangement is actually going against the principles of private practice, but the situation makes such necessary for administrative purposes, and such is not necessarily the wishes of the North Dakota physician.

Hearing program which began June 1, 1963. A discussion of serous otitis media came up for discussion, and Dr. Nagle stated that children do not get into trouble with serous otitis media and such should be excluded from Crippled Children's Services coverage, but chronic mucoid otitis media should be included. The program presently defined includes chronic otitis media, and Dr. Nagle believes that such could be more appropriately stated "chronic mental disease with hearing loss." Question was considered whether treatment of one ear should be included under Crippled Children's Service coverage. If the individual has satisfactory hearing on the other ear, it was the consensus of the group that Crippled Children's Services should include treatment of one ear even though the other may have satisfactory hearing.

Needs for medical reports. It was the consensus of the group that substantiating reports are needed. It was pointed out that when children are being followed up at frequent intervals, a separate report for each visit is not required, but a report may cover several of these visits.

Follow-up services. Question was raised whether the Crippled Children's Service should actively engage in follow-up activity. Dr. Ordahl felt that this should be left up to the physician and the family. Mr. Tangedal inquired whether it might be appropriate to ask a specialist when follow-up or "nudging" by the Crippled Children's Service is indicated. Dr. Ordahl indicated his acceptance of such an arrangement in that it could be handled similar to private patients, leaving it to the discretion of the individual doctor whether he wished assistance in keeping the patient under medical supervision.

Long-term cases. It was suggested that long-term cases be worked out on an individual basis and that Crippled Children's Services not require a frequent report as other individuals receiving care under this program.

Cardiac evaluations on pediatric patients. This point was whether cardiac evaluations on pediatric patients could be extended to qualified internists. It was the consensus of the group that evaluation of cardiac problems be left to the discretion of the 2 specialists, pediatric and internal medicine.

A proposed legislation pertaining to reporting of children abused by parents or their caretakers. This was included in the agenda just to alert the members of this council that such legislation is, in all probability, to be brought before the upcoming legislature.

Intervertebral disk pathology. This pointed out that such is rare in children and that other spinal problems of children are already defined elsewhere as medically eligible.

Policy regarding referral of cleft lip and palate and other plastic surgery problems. This point was brought up, as there is now a plastic surgeon practicing in North Dakota authorized to provide care under Crippled Children's Service program. It was the general consensus that referrals in the area of plastic surgery should not be limited to one plastic surgeon in North Dakota but that the program should continue utilizing the services of those presently authorized.

Consideration of meeting date. There was discussion whether a spring or fall meeting would be better suited to the members of the council. Dr. Amos expressed some reservation relative to the discussion of follow-up services in relationship to public health nurses and whether their services are needed or wanted. It should be the option of the parent or the physician whether nursing or social services are needed or wanted and should not be given on the basis that when individuals are on a public program such are automatically needed.

DONALD E. SKJEI, M.D., Representative

Committee on Aging and Rehabilitation

The Committee on Aging and Rehabilitation met at the rehabilitation unit of the medical center of the University of North Dakota on February 29, 1964. The committee members were greatly impressed by and, even more, appalled at the lack of utilization of the extensive facilities and specialized personnel of the rehabilitation unit.

The committee's main concern was means by which the inpatient (capacity of 41 patients) and outpatient services of the rehabilitation unit may be extended to more patients. The chief problem was means of spreading the news concerning these services to the physicians of North Dakota. It was decided to (1) display, if permission is granted, a specially prepared and comprehensive exhibit concerning the rehabilitation unit at the meeting of the North Dakota State Medical Association in Minot in May 1964 in hospital lobbies throughout the state and at any meeting of a medical organization, (2) request the cooperation of the North Dakota Heart Association in publicizing the unit and in extending the rehabilitation services of the unit to stroke victims throughout the state, (3) encourage tours of the unit by physicians, nurses, and other groups, and (4) have the chairman discuss the present status of the rehabilitation unit before the council of the North Dakota State Medical Association and urge the councillors to carry the message to their respective district medical societies.

The committee has offered its services and counsel to Governor William Guy's Committee on Aging. This offer has been graciously accepted.

HAROLD W. EVANS, M.D., Chairman

Committee on Constitution and By-Laws

This committee met on Saturday, February 29, 1964, and discussed thoroughly Resolution No. 12 as adopted by the House of Delegates in May 1963.

Our committee was instructed to study Resolution No. 12 and to report back to the house at the May 1964 meeting.

The resolution reads as follows:

> *Whereas*, according to the by-laws of the North Dakota State Medical Association, the councillor shall be elected by the House of Delegates, and
>
> *Whereas*, the Second District Medical Society is opposed to this method of election, and
>
> *Whereas*, the Second District Medical Society desires that this be an election of the individual district medical society,
>
> *Now, therefore, be it resolved* that the president appoint a special committee on the constitution and by-laws to study this recommendation and report to the house at the next regular session.

It was moved by Dr. Fawcett and seconded by Dr. Johnson that Resolution No. 12 be tabled and that the councillors be selected in accordance with Section 2 of Article IX of the Constitution of the North Dakota State Medical Association. Carried unanimously.

Some of the reasons for this decision are as follows:

a. The Second District Medical Society rescinded its resolution at its January 1964 meeting.

b. It is customary (according to information received from the AMA) for most state medical associations to have the House of Delegates elect the councillors.

c. Administration of association policies would be disrupted if the House of Delegates could not elect the councillors.

d. We know of no organization that has 2 governing bodies not responsible to each other and in which the officers would be responsible to one group and not the other. There must be cohesion, and there is a logical chain of command, whether it be in various medical associations or whether it be in corporate business activity.

e. If the House of Delegates is to be by-passed in the election of the councillors, then there is little point in electing members to the House. If any defects have arisen under the present system, we can state only very briefly and very bluntly that it is because the House has not exercised its right and prerogatives of full discussion of issues at the time of the annual meetings. The reference committees of the House may have failed in exercising their duties. The House has not exercised its right and prerogative of nominations from the floor for candidates for office if the nominating committee's selection does not fulfill the desire of each and every member of the House of Delegates.

The committee members are in unanimous agreement with this report.

C. H. Peters, M.D., Chairman
O. A. Sedlak, M.D.
O. W. Johnson, M.D.
Lee Christoferson, M.D.
J. C. Fawcett, M.D.

Committee on Medicine and Religion

The Committee on Medicine and Religion met for the first time on Saturday, March 21, 1964, at the Hotel Gardner, Fargo. The following members were present: Drs. M. J. E. Johnson, Frank Melton, J. W. Goven, H. C. Larsen, Wm. T. Powers, P. Roy Gregware, and T. E. Pederson. Also present were A. R. Gilsdorf, M.D., president of the North Dakota State Medical Association; Mr. Arne E. Larson, assistant director, Department of Medicine and Religion, AMA; and Mr. Daniel Buchanan. M. J. E. Johnson, M.D., acting chairman, presided.

In order to orient the committee to the general area of medicine and religion, while discussing AMA's interest in the field, Mr. Arne E. Larson was asked to meet with the committee for this initial session.

Mr. Larson noted that his department, created by the Board of Trustees of the AMA in 1961, was created to give form to liaison between physicians and clergymen. The Department of Medicine and Religion recognizes Man as a composite being; that is, a physical being, a mental being, a spiritual being, and a social being. Another factor which prompted the establishment of the Department of Medicine and Religion, according to Larson, is the growing interest of many church groups in matters of faith and health.

Medicine, Mr. Larson continued, was the logical place for formalized efforts in physician-clergy relationships to begin, since medicine is organized from the national to the county levels, physicians as a group exhibit greater stability than do clergy, and medicine is a body which uniquely represents all faiths and serves all faith groups.

Four points were underscored regarding the role of a state committee on medicine and religion. To wit:

1. The committee's intent is not to provide social activity or fellowship among physicians and clergy.
2. Medicine and religion is not a legislative program.
3. The program does not seek to evangelize physicians.
4. Medicine and religion is not trying to place chaplains in community hospitals.

General objectives and duties of a committee on medicine and religion are as follows:

1. To help the medical society and physicians become acquainted with the clergymen as a group of persons in the community
2. To develop a program with church leaders to cover the areas where each feels the greatest good may be done in bettering relationships of physicians and clergy in total patient care
3. To provide a continuing program.

General agreement was voiced that a program of medicine and religion would best be carried out on the district or even community level, and it must be viewed as a long-range effort to improve communication between physicians and clergy.

It was suggested that members of the state committee begin to give thought to ways in which a program might be evolved in their districts or communities. They were also asked to begin orienting physicians in their districts by at least discussing the program of medicine and religion with the officers of their respective societies. Other suggested duties of members of the state committee were to begin to contact people in their districts who would help implement such a program, to serve as resource persons, and to orient others to the general area of physician-clergy relationships.

M. J. E. Johnson, M.D., Acting Chairman

Speaker Christoferson, in presenting the retiring president of the state association, Dr. A. R. Gilsdorf, remarked that the presidency is a post of extreme responsibility combined with a tremendous amount of work. Dr. Gilsdorf's address follows:

PRESIDENTIAL ADDRESS

DR. A. R. GILSDORF: "Mr. Speaker, fellow physicians, and guests: The end of my term as president nears, and I will soon become an addition to the 14 living past presidents. I am proud to have had the opportunity to serve you and hope I have made some worthwhile contribution. I wish to express my profound gratitude to the many who have given their help and support, especially the committee chairmen, councillors, officers, and Lyle Limond and associates of the Bismarck office. I also wish to express my appreciation to all 10 district societies; first, for inviting our executive secretary and myself to their meetings and, second, for the kindness and interest shown us when we made our visitations. I know you will give your wholehearted support to my capable successor, Dr. G. Alfred Dodds.

"Governmental intervention into the medical fields is immense and is increasing rapidly throughout the world. Instead of speaking of the dangers of becoming socialized, I think we should understand that we already have much socialization with us and that there is not much hope of its elimination. Let us not, however, assume a fatalistic attitude and fail to participate in the work of organized medicine; nor should we become negativistic. Medical guidance, medical contribution to the general welfare, improved communication, and exemplary citizenship are our best protection against a communistic type of life.

"I hope we have kept ourselves informed on the fate of medicine and physicians in Belgium. If their new government edict is enforced, Belgian doctors will face fines and imprisonment if they fail to accept the system's patients and fees. This type of situation, however, exists in many other socialized nations. In the U.S.A. there still are too many physicians who think 'let George do it' or 'if I take time to do this, it will interfere with my practice or my vacation.' It is better that we join the team than be complacent. We must give our time as well as pay our dues. It is our responsibility to be concerned about the socioeconomic problems of our patients. We face a year of state and national elections. Our support of AMPAC nationally and COMPACT for North Dakota is needed.

"Our federal government has passed mental health and mental retardation legislation with large appropriations. We are not now in a position to effectively voice approval or disapproval. We are expected to offer guidance and cooperation.

"In November the U.S. Congress passed the Health Professions Educational Assistance Act of 1963 (Public Law 88-129). This was originally HR-12 and is still so designated by some. This law will provide federally subsidized loans for students of medicine, dentistry, and osteopathy. It is in direct competition to our own AMA-ERF Medical Education Loan Guarantee Program. Proponents of Public Law 88-129 maintain that 'the terms are very liberal.' Of course the so-called 'liberal terms' simply means taxpayer subsidy. Public Law 88-129 has brought 2 direct major problems to us. First, the Student American Medical Association (SAMA) during its convention in Chicago May 1 to 5, 1963, reversed its stand of 1962 and went on record as being in favor of federal loans to medical students and made this decision known to the Appropriation Committee of the U.S. Congress. Second, medical school instructors and deans are under pressure to get this 'cheap money' for their deserving students and are being asked to raise 10% of the amount to be allocated, in order to match the federal loans. The Women's Auxiliary of the North Dakota State Medical Association has been asked to help raise this money for the University of North Dakota Medical School, namely from funds the ladies have raised for their own student loan fund. They have also been considering the transfer of this student loan fund to the AMA-ERF. They are asking us for suggestions. How to meet these challenges will involve much 'soul searching' and deliberation. Do we truly understand the thinking and feelings of our medical students, residents, and their teachers? Can we do more to sell them on our philosophies? What more can we do to make them less dependent on government?

"Let us be reminded of some positive approaches to medical care available to us:

"There is a need for an accelerated program of immunization, especially for tetanus and smallpox. The emergency medical identification card and universal identification symbol prepared by the AMA can easily be obtained at low cost and distributed to your patients. We should take advantage of our opportunities to assist and advise in solving problems of the aged—in a logical instead of an emotional manner. Rural and school health programs in our state need stimulation. We can strive to make more contacts with students in high school and colleges and encourage them to go into medical careers. We can accept more public speaking engagements. We can aid in a positive program of health legislation this coming year.

"What are some ideas for the future for our State Association?

"We can improve our constitution and by-laws. At present we have 9 standing committees, 16 special committees, and 6 liaison and advisory committees. I believe we can have better communication if we group these under 'commissions.' We can consider giving more specific duties to the vice-presidents and president-elect. The latter should be definitely assured of assuming office as president.

"Blue Shield activity cannot and should not be separated from the state medical association. Voluntary health insurance and prepayment medical plans are here to stay as long as our government does not step in and take them over. Our continued cooperation with them is very necessary in maintaining our chosen way of life.

"Let us further improve communication between all physicians. The AMA staff has shown its willingness to cooperate. We should continue our efforts to bring together AMA, AMA delegates, state officers, and state councillors at the district society level.

"In round numbers the AMA membership is 200,000 with a registered auxiliary of 84,400, and the North Dakota State Medical Association membership is 460 with an auxiliary of 310. We should further encourage and aid our good ladies. The favorable influence of organized medicine varies directly, as does the number of active auxiliary members.

"The challenges of organized medicine and medical administration are similar to those met in becoming family physicians or specialists and maintaining a practice. We are destined to be both students and teachers all of our active lives. I have confidence in the abilities and sincerity of the physicians of North Dakota. We shall face the future with optimism, born of united effort. Thank you."

Speaker Christoferson expressed gratitude to Dr. Gilsdorf for the excellent job accomplished under his capable leadership as president of the association. He then called on Dr. G. A. Dodds for his inaugural address.

His address follows:

INAUGURAL ADDRESS

DR. G. A. DODDS: "Mr. Speaker, members, and guests. I find myself in the same situation as the little southern boy who fell into a barrel of molasses. Appreciating his predicament, he looked heavenward and prayed, 'Lord, give me a mouth equal to the occasion.'

"I am appreciative of the honor this association has bestowed upon me. The future cannot be predicted. However, I will at all times act in what is deemed the best interest of the society, its component parts, and as a physician. I am not a zealous crusader; my only special interest is the North Dakota State Medical Association. My hope is that the ensuing year of this association duplicates the one of dedicated, composed accomplishments being concluded by Dr. Gilsdorf.

"When I started to ponder about the presidential society addresses, it rapidly became apparent that this is in reality an initiation ritual spawned by the Inquisition. Past presidents have uttered millions of words only to have them fall into the limbo of the forgotten. The pilloried president has wondered why the Committee on Constitution and By-Laws did not long ago eliminate these annual weighty utterances. Without a haven of refuge, I must unburden myself of certain thoughts and observations pertinent to the present and to the ensuing year.

"As physicians today we must appreciate that when we chose medicine as our mistress, we realized that she is demanding. No man of medicine is a part-time physician. We represent the profession every hour of this life. If we choose to barter in the marketplace, then we will be treated as a business rather than a profession. Our individual actions and conduct of affairs is reflected upon our profession. It is our responsibility to rise above our society and make our influence felt. We must assume the individual duty of improving medicine and its services. We shall preserve the free enterprise systems, our independence, and not permit third party interference. Remember one thing—victory is not won by making compromises.

"I believe one immediate action we should take is that dealing with resolutions by the House of Delegates. So often a resolution is hastily presented to the house, referred to the already overburdened resolution committee, then reported out to be voted upon by delegates often not cognizant of the resolution's implications or practicability. It seems to me that any resolution other than those dealing with the amenities of the society and our host city should be presented to the delegates in writing prior to the annual or special meeting. This would permit an orderly, informed action by the house and could eliminate some embarrassing, impractical resolutions.

"If our society is to remain vibrantly alive, then our younger physicians must actively participate. A new step in this direction is being inaugurated by your Committee on Public Relations. This will consist of the greeting of new licensees at the time of examination and presenting each with a package dealing with the medical society, state health regulations, and information concerning many answers to establishing his practice.

"The next step is making this young man welcome and a part of our team. Remember, it is possible to still have as a valued friend your most vigorous competitor.

"District societies should poll their members to single out those that are interested in organizational medicine, then elect the delegates and officers from this group. I am also a firm believer that there is a committee for every man. In the ensuing year, your acceptance of committee appointments will be appreciated by me.

"As physicians, we have the obligation of interesting suitable high school students in the profession of medicine. We also have an obligation to the people of North Dakota to provide adequate medical service. This requires our efforts in interesting new physicians to locate here and to encourage the former North Dakota man, completing his medical education, to return to this state for internship and practice.

"A proposal has been previously made in the case of loans granted to medical students at the University of North Dakota Medical School, under the state loan program, that if this student on graduation from medical school returns to North Dakota for internship, then he would receive one year of credit against his loan. It is my conviction that the endorsement of this proposal and implementation of necessary legislation would be in the best interest of future medical care in North Dakota.

"Now to indulge in some brief philosophical thought on the subject of criticism. The medical profession has to its credit over the years practiced searching self-criticism. Informed suggestions by our lay friends have helped create in us an awareness of our blind spots. Discussion of medicine has a never ending appeal, and the least qualified often pontificate at the greatest length. Those who are prejudiced or seek domination have the caustic barbs that irritate our tender sensibilities. To satisfy every strata of society we would have to be a paragon of all the virtues. This is beyond the reach of Western man. Only Greek mythology could have generated such a creature. While criticism can be beneficial, it can also be the ultimate weapon to destroy the individual by obscuring his true goal and dissipating energies into anger. Let us then develop a callousness to unwarranted criticism in order that we can pursue our goal of the honorable, artful, scientific conduct of our profession and an interest in everything that makes life splendid and exciting.

"If a few of the preceding remarks are argumentative or productive of thought, then this effort is tangibly rewarded. I thank you for the honor and privilege extended."

Speaker Christoferson thanked Dr. Dodds and added that he was certain that the members would contribute their utmost ability for the good of the association.

SPEAKER CHRISTOFERSON: "Before I introduce the next item of business, I would like to take the prerogative of discussing with you a certain problem that has arisen from the activities of 3 of the district societies. This is in regard to the election of the council. There is some criticism in the way the by-laws are written for the election of the councillors. This has been acted upon and will be discussed tomorrow when the reports of the reference committees are brought in. In keeping with this, I would like to point out to you, as the by-laws appear in relation to the election of the officers.

"All voting must be by ballot. At the first meeting of the house the president of the association will announce the names of the Nominating Committee. This allows the elected delegates from the district societies to approach the nominating committee if they have some candidate whom they feel is suitable for the position which happens to be open for nomination. This allows a democratic means of obtaining a nomination by a district society, if they have a preference. Furthermore, at the time of the second session, which will be tomorrow, the floor is always open for nominations. The local delegates from each society may then, at the time of the second session, nominate any candidates they wish. These candidates can then be balloted upon by the House of Delegates.

"This should be kept in close reference that the councillors not only represent a district society but they also represent the state society. When a councillor is elected by this body, the one being elected is the one the state association feels will serve the state best. The district society is not in a position to know whom would best serve. It is my opinion that the election should come from the House of Delegates by their nominations but should be influenced by the district society. I wish you would keep this in mind and think about it a little before this comes up tomorrow."

Secretary Buckingham was asked to read the names of the members of the Nominating Committee. The members are as follows: Frank Hill, chairman; O. W. Johnson; and R. D. Nierling. Alternates are: Frank Naegeli and Phillip Dahl.

SPEAKER CHRISTOFERSON: "It is a delight each year to recognize the several physicians in North Dakota who have been practicing in the state for fifty years. The older I get, the faster that fifty years seems to be approaching. Somehow I feel that I will never make it. It takes quite a constitution to keep up the pace for fifty years.

"This year we have a member in our society who has reached this point and is eligible for the 50-Year Club—Dr. Alexander C. MacDonald of Valley City. When I first came to North Dakota, Dr. MacDonald used to call me, and I was very much impressed with his vigorous voice. Then, another Dr. MacDonald would call me with an equally strong voice, and I finally found out that the father sounded as vigorous as his son. This is probably because he is a Highlander from Scotland, and they must be strong to undergo the rigors of that country.

"Dr. Alexander MacDonald was born January 22, 1885. He received his preliminary education at Lidgerwood, N.D., and his B.A. degree in 1912 from the University of North Dakota. He received his medical degree in 1914 from Rush Medical College, Chicago, Ill.; interned at Children's Memorial Hospital, Chicago; and did postgraduate work at the University of Chicago and the University of Minnesota. He was licensed to practice medicine in North Dakota in 1915. He practiced at Fingal, North Dakota, until December 1917; served in the U.S. Army Medical Corps from 1918 to 1919, both in the United States and Overseas; and has practiced at Valley City, N.D., from 1919 until the present time. His son, Neil A. MacDonald, M.D., is also practicing at Valley City.

"It is my privilege at this time to ask Dr. Gilsdorf to present Dr. MacDonald with his fifty-year pin and certificate."

Doctor Gilsdorf was then called upon to present the fifty-year award to Dr. MacDonald of Valley City, North Dakota.

The chairman asked that Dr. Buckingham read the following communications:

DR. BUCKINGHAM:

April 30, 1964

Dear Doctor Gilsdorf:

I wish to thank the North Dakota State Medical Association for the Certificate of Distinction and the Fifty-Year Service Pin which Doctor Hill presented to me in honor of my late husband's many years of dedication to his profession.

Respectfully,
Mrs. M. T. (Ethel) Sayre
Northwood, N.D.

We also received the following letter from Doctor Willard A. Wright:

Doctor Lee Christoferson
Speaker of the House of Delegates
Dear Lee:

I am indeed sorry that I will be unable to attend the annual meeting of the North Dakota State Medical Association this year. The Council on Medical Services Committee on Federal Medical Services is having an important meeting in Washington May 2 and 3, which I must attend. I am going to miss your meeting very much and will miss seeing so many of my old friends.

Please convey my greetings to the House of Delegates and my best wishes for a successful meeting of the House and the Association.

Sincerely yours,
W. A. Wright, M.D.

Dr. Gilsdorf stated that he had received the following letter from the Chamber of Commerce, Bismarck, North Dakota.

DR. GILSDORF:

Bismarck, N.D.

Doctor A. R. Gilsdorf, President
Minot, N.D.
Dear Doctor Gilsdorf:

The Bismarck Chamber of Commerce wishes to extend a most cordial invitation to the North Dakota State Medical Association to hold their 1965 Convention in Bismarck, the Capital City of North Dakota.

Please be assured that our organization will cooperate with you in every way possible to make your Convention an outstanding success if we are selected as your convention city. We offer typical western hospitality, adequate meeting facilities, fine hotel and motel accommodations, excellent catering services, and ample parking space.

If there is any particular information you wish to have, please do not hesitate to call on us.

Bismarck looks forward to your favorable action on this invitation and will be happy and proud to have as our guests in 1965, the North Dakota State Medical Association.

Sincerely,
Bismarck Chamber of Commerce
Arthur Leno, Manager

Speaker Christoferson then asked the chairman of the reference committees to announce the time and place of their meetings. This was done. He then pointed out that any member wishing to present a matter to the House of Delegates should first present it to the reference committee for study and consideration.

The chairman asked if there was any new business to be brought before the house.

Dr. Mahowald announced that a State Line Conference was scheduled for May 12 and 13. He added that the conference was being sponsored jointly by the Public Health Department and the Committee on Emergency Medical Care. He urged that, if at all possible, doctors participate in this meeting.

The first session of the House of Delegates adjourned at 5 P.M.

PROCEEDINGS
Of the House of Delegates,
Second Session

Speaker Christoferson called the meeting to order at 2:30 P.M. Dr. Lommen, chairman of the Credentials Committee, reported that there was a quorum present.

Secretary Buckingham called the roll. The following delegates and alternates responded:

Drs. A. C. Burt, Fargo; H. A. Norum, Fargo; R. J. Ulmer, Fargo; M. H. Poindexter, Jr., Fargo; R. E. Kulland, West Fargo; Paul Beithon, Wahpeton; B. F. Amidon, Fargo; G. W. Seibel, New Rockford; A. R. Neuenschwander, alternate, Rolla; Robert Painter, Grand Forks; John Sandmeyer, Grand Forks; George Countryman, Grafton; Richard H. Leigh, Grand Forks; Kenneth Helenbolt, Grand Forks; W. P. Teevens, alternate, Grafton; Lloyd Giltner, Minot; A. Malcolm Cameron, Minot; Jens Sahl, Jr., Minot; C. J. Klein, Valley City; C. J. Baumgartner, Bismarck; E. G. Vinge, Hazen; P. O. Dahl, Bismarck; M. E. Nugent, Bismarck; R. B. Tudor, Bismarck; M. A. K. Lommen, Bismarck; John Elsworth, Jamestown; James V. Miles, Jr., alternate, Jamestown; Donald E. Skjei, Williston; W. C. Hauewald, Dickinson; R. E. Hankins, Mott; James Little, Mayville; and G. H. Hilts, Cando.

There were 32 delegates present, including 3 alternates. Also attending the meeting were:

Drs. G. A. Dodds, Amos Gilsdorf, E. H. Boerth, C. H. Peters, G. W. Toomey, R. D. Nierling, Keith Foster, G. Christianson, J. D. Craven, C. J. Glaspel, E. J. Larson, Dean Strinden, R. F. Mahowald, and Mr. Lyle Limond and Mr. C. Johnson.

Since there was no objection, the reading of the minutes of the first meeting was dispensed with. Speaker Christoferson introduced Mrs. Hankins, president, Woman's Auxiliary, and praised the women for their efforts and activities for the advancement of medicine in the state.

MRS. R. E. HANKINS: "Gentlemen, it is indeed an honor and a privilege for the auxiliary president to address your House of Delegates each year. Thank you for this opportunity.

"Some of you heard me speak before at your officer's conference in October. You heard what the national auxiliary programs are and who in the state auxiliary was responsible for implementing them this year. These programs and the purposes of the auxiliary remain constant.

"Today, I will tell you our immediate problems and goals and bring you up-to-date on the projects continued, started, and completed in the past year in North Dakota.

Perhaps, then, you will see that we have been able to do some worthwhile things—and have been doing them over the years—to assist your state medical society in the AMA programs, which is the auxiliary's first official purpose.

"In the past thirteen years the North Dakota Medical Auxiliary has raised over $27,000, which is an average of about $900 per member, for our own North Dakota University Medical Student Loan Fund. It started out modestly with $500 loans, and the interest was and still is 2%, payable after the young doctor is out in practice. Until last year the loans were limited to the sophomore medical students who were transferring to other schools for the last two years where fees were higher. Naturally, we then had to wait for repayment for several years before they even got into an internship and then on to residencies or practices. The loans are beginning to be paid back, so our fund could grow considerably. At last year's convention we chose to make the loans up to $1,000 each and included other years of medical schooling. The usual amount contributed each year by the auxiliary is about $2,000—enough for 2 loans plus any monies received in repayment and interest. I think we can be very proud of our auxiliary's contribution, especially since it is an 'at home' unsubsidized effort working for our own North Dakota University students.

"Besides this $2,000 to the Student Loan Fund, we do contribute to the AMA-ERF programs. Over $300 is collected each year for this worthy cause. This money, in the past, has been earmarked for designated funds at the University of North Dakota.

"Now we have a new decision facing us. I believe we have 3 alternatives for the use of these funds, and you have been requested to help us reach a decision; so, an explanation is in order. One alternative is to leave it as it is—two $1,000 loans at 2% interest, payable after starting practice. Another is giving our $2,000 plus the regular AMA-ERF monies of $300 to the AMA-ERF loan guarantee program each year and, if possible, earmarking it for University of North Dakota students. This would mean a twelvefold increase in funds available but gives the student an added burden in much larger interest rates, 3½%, which begins the day the loan is made, and 6½%, upon completion of training. Looking back on your own finances during your first years of medical school, is this expensive money for a student to borrow, even granting the potential for repayment?

"Another alternative is the new tenfold matching funds of federal loans to medical students. This alternative would enable the university, which even now handles all bookkeeping and awards, to use our $2,000 each year to make $20,000 available to the students. This money is interest free until graduation, and then the rate will be 3 to 4%. We know that this would make a tidy sum of seemingly cheaper money available to the students—cheap to the student since tax money subsidizes the deficits. We know, too, that requests for loans are greater than our $2,000 has ever been able to cover. The students, however, do appreciate the low interest rate. The university needs to find a source of money to use to apply for these matching funds, hence their request to consider letting them use our money under the federal program. We have in turn asked you what your opinion is. We will still need to make our own decision tomorrow, of course, but we will at least have your acceptance of preference to help guide us. Enough of our problem.

"It is the duty of the state officers and committees to coordinate and advise concerning the activities of component auxiliaries, and here are some of the things we have accomplished this year.

"It always amazes me to hear all the wonderful community projects being carried out by our membership. I am convinced that in our group we have the most talented, well-informed, well-educated women in the state. I doubt if there is any facet of talent that is missed in our women. We have superior musicians, artists, teachers, business and professional women, and wonderful mothers, and I bet you'll admit to a pretty nice wife, too! Many of the gals combine several of these talents to make their home and community a better place to be. Community service is one of the outstanding areas of achievement in North Dakota auxiliary work. Many times it is on such an individual basis that only you and she knows it exists. North Dakota auxiliary members are second to none in their enthusiasm and accomplishments. Any of you who read 'News, Views, and Cues'—and apparently many of you do—know just how many women are involved in community service and how varied the projects are.

"Now, let us take the area of legislative activities. Besides delegates to state conventions, we have many state and county chairmen of political committees and groups on both sides of the aisle who are definitely having their influence known and felt in community, state, and national politics. The AMA debate kits prepared for high school debate teams were distributed with the assistance of auxiliary members; 325 of the 696 debate kits distributed in the state were through auxiliary efforts. Many auxiliary members heard the debate teams in action and were impressed by the knowledge and ability of the high schoolers as they discussed 'Medical Care for the Aged Under Social Security.'

" 'Operation Hometown' received much valuable assistance in the letter writing, telephoning, and coffeeing done to acquaint neighbors, friends, and legislators with our members' opinions. At the AMPAC Workshop in Chicago a few weeks ago, one speaker impressed me with a remark. He said that he frequently gets the answer that the doctor and the doctor's wife don't want to get 'mixed up' in politics, and he heartily agrees! Don't get 'mixed up' in politics—instead, learn something about it and then work for your convictions. An apropos statement to the need for political action is, 'All that is necessary for evil to triumph is that good men do nothing.'

"Other programs have been carried out this year, too, such as:

"*Safety.* At our board meeting in October we agreed to help in the area of gun safety. Some of our districts are looking for a service organization, or an instructor, willing to teach the National Rifle Association's gun safety course. Another district has adopted a resolution encouraging the North Dakota Wildlife Federation in their introduction of legislation 'for instruction in the proper use of firearms, as a prerequisite to the issuance of hunting permits.'

"Our Health Careers Committee held a most successful state rally in Bismarck last September, and the sixth annual auxiliary-sponsored rally will be held in Jamestown next fall. Two auxiliary members are officers in the North Dakota Council on Health Careers which also helps sponsor these rallies. There are about 6 auxiliary-sponsored Health Careers Clubs in the state, and many other auxiliary members are active in the candystripers and volunteer programs in the hospitals.

"Disaster Preparedness has had varied response. One district heard your Civil Defense chairman, and several auxiliary members are active locally with medical self-help classes. We will have a guest speaker at tomorrow's meeting to bring this message to the membership.

"Mental health also will be discussed at tomorrow's meeting. The North Dakota Health Department has been most helpful in supplying material and speakers for our sessions.

"The movie, 'The One Who Heals,' was shown at our board meeting in October, and since then several requests have been made to have it shown in various communities. Those who have seen and used it know how effective it is for communicating with the clergy and fostering better patient care.

"Last, but not least, was a project launched to get statewide participation and let you men 'get into the act'! Many of you are bringing sample drugs and books to the convention. We don't know yet just how much will be packed and shipped from here. But, even before this meeting, 18 boxes had been shipped individually to World Medical Relief and 2 barrels to Honduras. Two groups sent boxes of bandages prepared from old sheets. Our thanks to you for your cooperation on this project. How many more of you sent drugs and books may never be known—too often these efforts go unreported. But, again, thanks.

"Remember that the auxiliary is here 'to participate in any endeavor on the request of the North Dakota State Medical Association.' We would be glad to accept any assignments you care to give us on district or state level. We will always attempt to do what we can to further your activities.

"Now that you see what can and has been done in the auxiliary, don't let your attitude to your wife's efforts be grouchy. Perhaps her satisfaction with a job well done and your pleasant attitude will be reflected in more work accomplished for your medical association. Among your reasons for marrying her were her potential and intelligence. We would like you to encourage her to use it for your auxiliary. If nothing else, be sure to let her fulfill the third purpose of the auxiliary—'to cultivate friendly relations and promote mutual understanding among physicians' families'—which we will be doing when we see you next, tonight at the mixer. Thank you."

The next order of business was the report of the Reference Committee to consider the reports of the president, secretary, executive secretary, and treasurer.

Dr. Hanewald, chairman, presented the following reports and their discussions, which were adopted section by section and as a whole:

1. *Report of the President.* The Reference Committee commended Dr. Gilsdorf for the very detailed, interesting summary of his tours throughout the year. They felt that emphasis should be placed on the last sentence of a paragraph of his report (p. 16 of handbook) concerning the conference with the North Dakota Mental Health Association: "This behooves us to be concerned about good medical guidance for these organizations." This portion of the report was adopted.

2. *Report of the Secretary.* This report was reviewed and approved. This portion of the report was adopted.

3. *Report of the Executive Secretary.* The Reference Committee commended Mr. Limond for a job well done during the past year and also for an interesting report. This portion of the report was adopted.

4. *Report of the Treasurer.* This report was reviewed and approved. This portion of the report was adopted.

The motion was made by Dr. Hanewald and seconded by Dr. Nugent that the report be adopted as a whole. Motion carried.

Dr. W. C. Hanewald, Chairman
Dr. James Little, Vice-Chairman
Dr. Kenneth Helenbolt
Dr. Roy E. Kulland
Dr. Phillip O. Dahl

Reference Committee to Consider the Reports of the Council, Councillors, and Special Committees

1. *Report of the Chairman of the Council.* The Reference Committee reviewed and approved the report of the chairman of the council. Notice, moreover, was taken of the reference by the council to a study made by the Legislative Research Committee concerning North Dakota welfare laws, with the suggestion that a special committee be formed for this purpose. It was, however, the consensus of the Reference Committee that the work described properly belongs to the Committee on Medical Economics and recommended that that committee include it in their duties. This portion of the report was adopted.

It was noted by Dr. Ulmer that a state committee on medicine and religion had been appointed, and he commended the council and the president for their action. This portion of the report was adopted.

The Reference Committee, in continuing the report of the council, stated that it would like to reemphasize the paragraph reading as follows: "General agreement was voiced that mental health services seemed to be coming under the jurisdiction of nonmedical people, such as psychologists, social workers, and public welfare personnel. The council insisted that medical direction and supervision be inherent in any proposals dealing with mental health." The Reference Committee recommended that the House of Delegates take positive action to insure adequate medical direction of all mental health planning programs. This portion of the report was adopted.

The Reference Committee noted the problem relative to the selection of nominees to the State Board of Medical Examiners and recommended that the House of Delegates continue to submit names to the governor, as in the past, but without the restriction imposed on the membership of the association in 1963 to the effect that physicians not nominated by the House of Delegates decline such appointments. This portion of the report was adopted.

The committee noted the discussion about the election of councillors and recommended that no change be made in the present system. The committee reminded members of the association that their elected delegates, in the House of Delegates, may make nominations from the floor and that perhaps a little more politicking at the local level would take care of any deficiencies in the present system. In this regard, a resolution from the Fourth District Medical Society was received by the Reference Committee and rejected.

The resolution follows:

WHEREAS, according to the by-laws of the North Dakota State Medical Association, the councillor shall be elected by the House of Delegates, and

WHEREAS, the Fouth District Medical Society believes that this method of selection could be improved,

NOW, THEREFORE, BE IT RESOLVED that the selection of a councillor be made from a list of candidates given by the individual district societies.

After some discussion by the delegates the following motion was made by Dr. Dahl:

Dr. Dahl: I would move that the resolution of the

Fourth District Medical Society be submitted back to the 10 individual districts for their action, to be brought up again a year from now at the next meeting.

The motion was seconded by Dr. R. S. Larson and passed.

The Reference Committee reviewed the matter dealing with the North Dakota Arthritis and Rheumatism Foundation and commended the council for its action.

The committee also noted the suggestion of the council to supply information about the state medical association, Blue Shield, and the AMA to new physicians in the state and commended the council for this action. The committee concurred with the council's recommendations regarding "Operation Hometown" and recommended that the program be carried on with renewed vigor. The Reference Committee noted the decision to invite University of North Dakota medical students to future meetings of the council and House of Delegates, or to send student AMA representatives to these meetings, and commended the council for this action. This portion of the report was adopted.

The Reference Committee noted the recommendations of the chairman of the Public Relations Committee to the council and the council's reaffirmation of the AMA caravan concept to include visits to the district medical societies. The committee urged that this program be implemented. This portion of the report was adopted.

Dr. Ulmer stated that a proposal to amend the by-laws had been introduced and approved by the council and that the Reference Committee recommended that this change be proposed to the House of Delegates.

Dr. Ulmer made the motion "that Chapter II, Section I, of the by-laws be amended to read as follows: The annual session shall be held for three consecutive days, beginning on the Friday immediately preceding the first Sunday in May. This change to be implemented as soon as practical." After discussion it was moved by Dr. Hanewald and seconded by Dr. Klein that the motion to amend the by-laws be tabled until the fall session. The motion passed.

Dr. Ulmer: The chairman of the council has asked that the House of Delegates authorize the revision of the constitution and by-laws. The Reference Committee, therefore, respectfully recommends that the new president carry on with our present Committee on Constitution and by-laws, namely, Drs. C. H. Peters, chairman, O. A. Sedlak, O. W. Johnson, Lee Christoferson, and J. C. Fawcett, and authorize the revision of the constitution and by-laws within the next two or three years. This portion of the report was adopted.

The Reference Committee noted that the First District Medical Society will man a first aid station during the National Plowing Contest near Fargo this fall and also commended the Second District Medical Society for their contributions to medical scholarships. This portion of the report was adopted.

2. *Report of the Committee on Cancer.* This report was reviewed and approved. This portion of the report was adopted.

3. *Report of the Committee on Nursing Education.* The committee reviewed and approved the report and recommended that this committee continue its efforts in establishing better liaison with the nursing profession. This portion of the report was adopted.

4. *Report of the Committee on Maternal and Child Welfare.* This report was reviewed and approved. This portion of the report was adopted.

5. *Report of the Committee on Diabetes.* This report was reviewed and approved. This portion of the report was adopted.

6. *Report of the Committee on Crippled Children.* The committee reviewed the report and felt that this report contained valuable information for all physicians in the association and recommended that its contents be brought to their attention. This portion of the report was adopted.

7. *Report of the Committee on Foreign Trained Physicians.* This report was reviewed and approved. This portion of the report was adopted.

8. *Report of the Committee on Mental Health.* This report was reviewed and approved. This portion of the report was adopted.

9. *Report of the Committee on Aging and Rehabilitation.* This report was reviewed and the committee reminded the members that rehabilitation facilities exist in Grand Forks. They were also asked to make better use of these facilities in the future. This portion of the report was adopted.

10. *Report of the Committee on American Medical Education Foundation.* This report was reviewed and approved. This portion of the report was adopted.

11. *Report of the Committee on Emergency Medical Service.* This report was reviewed and approved. This portion of the report was adopted.

12. *Report of the Liaison Officer to the North Dakota State Bar Association.* The committee concurred with Dr. Johnson that additional medical-legal institutes of interest can be developed for future programs in the state. This portion of the report was adopted.

13. *Report of the Committee on Medicine and Religion.* This report was reviewed and approved. This portion of the report was adopted.

14. *Report of the Committee on Constitution and By-Laws.* This report was reviewed and approved. This portion of the report was adopted.

15. *Report of the Liaison Committee to the North Dakota State Dental Association.* It was noted by the committee that it is the wish of the North Dakota Dental Association to have the Cancer Treatment Law amended to permit dentists to participate in the diagnosis of oral cancer. The committee recommended that this report be forwarded to the Legislative Committee for their consideration. This portion of the report was adopted.

16. *Report of the Representative to the Crippled Children's Services Division of the Public Welfare Board of North Dakota.* The committee recommended that all physicians read the contents of this report. This portion of the report was adopted.

Dr. Ulmer moved that the report be adopted as a whole. The motion was seconded by Dr. Sandmeyer, and it carried.

Dr. R. J. Ulmer, Chairman
Dr. G. W. Seibel, Vice-Chairman
Dr. W. P. Teevens, alternate
Dr. Jens Sahl, Jr.
Dr. C. J. Klein
Dr. M. A. K. Lommen

Reference Committee to Consider the Reports of the Delegate to the AMA Medical Center Advisory Council, and Committee on Medical Education

Dr. Countryman, chairman of this committee, presented the following reports and their discussions, which were adopted section by section and as a whole.

1. *Report of the Delegate to the AMA.* The committee commended Dr. Pederson as an outstanding representa-

tive delegate to the AMA for the North Dakota State Medical Association. The committee stated that it is very much aware and appreciative of the immense work done by Dr. Edward R. Annis in fighting socialized medicine. The committee recognized the urgent need for practicing physicians in the state to improve communications with the lay people to effectively counteract back-door compromising of the free practice of medicine. The committee stated that they had been disturbed by the criticism of AMA lobbying and recommended that a study be made of AMA lobbying policies. This portion of the report was adopted.

2. *Report of the Committee on Medical Education combined with the report of the Medical Center Advisory Council.* The report was reviewed by the committee which noted that the medical center loans were not proving to be a significant factor in bringing physicians back to the state. Because of possible inadequacies of the loan structure, the Reference Committee recommended that the president of the North Dakota State Medical Association appoint a commission to investigate the revision of the student loan fund guarantees, in respect to the following: (1) Forgiveness Clause—Should it be completely abolished to induce more medical students to return to the state to practice? Many students feel that they have to go to towns of a population of 3,000 or less, which is indeed a handicap. (2) The interest of 6% now being charged on loans has been found to be greater than in neighboring states with medical loans. The committee further requested that this committee, if appointed, report to the House of Delegates meeting in December of this year. Dean Harwood, present at the Reference Committee meeting, emphatically stated that the Rehabilitation Center was not operating under its full capacity and that there was an omission of the word "not" in the first line of the committee report on p. 72 of the handbook. Dean Harwood further stated that the highest enrollment in the past year at the center was 16 patients per day; this is half of what could be taken care of adequately. Dean Harwood remarked that the cooperation of all the doctors in the state in referring patients in need of rehabilitation would increase the patient load and also help medical student education. He added that consulting specialists are available and are asked to participate in patient care on a diagnostic and treatment basis when necessary and that no patient is denied the services of the center regardless of financial status. After discussion, Dr. Christoferson asked that the portion of the report concerning the appointment of a commission be read again.

Dr. Countryman: Because of the possible inadequacies of the loan structure this Reference Committee recommends that the president of the North Dakota State Medical Association appoint a commission to investigate the revision of the Student Loan Fund guarantees.

Motion passed. This portion of the report was adopted. The motion that the report be adopted as a whole was made by Dr. Countryman, seconded by Dr. Skjei, and carried.

Dr. George L. Countryman, Chairman
Dr. R. B. Tudor, Vice-Chairman
Dr. Blaine F. Amidon
Dr. Donald E. Skjei
Dr. A. Malcolm Cameron

Reference Committee to Consider the Reports of the Standing Committees

Dr. Giltner, chairman of this committee, presented the following reports and their discussions, which were adopted section by section and as a whole.

1. *Report of the Committee on Necrology and Medical History.* The report was reviewed and approved. A moment of silence adopted this report.

2. *Report of the Committee on Legislation.* This report was reviewed by the committee, which endorsed the resolution to be presented by this committee. This portion of the report was adopted.

3. *Report of the Committee on Public Health.* The committee reviewed the report and found it acceptable. They encouraged each physician to have further awareness of the increasing incidence of venereal disease. The committee asked for further effort on the tetanus immunization program for adults. They encouraged continued adequate medical surveillance of driver licenses and emphasized the need of a medical advisory committee to the safety responsibility division of the North Dakota Highway Patrol. This portion of the report was adopted.

4. *Report of the Committee on Public Relations.* The committee reviewed the report and noted the activity of the committee in their efforts toward better public relations. Special note was taken of the statement that good public relations are dependent upon ethical medical practice. Through this it is possible to demonstrate to the public the physicians' concern for their well-being, in fact, for their benefit. This portion of the report was adopted.

5. *Report of the Committee on Official Publication.* This report was reviewed and approved. This portion of the report was adopted. Dr. Giltner moved that the report be adopted as a whole. The motion was seconded by Dr. Norum and carried.

Dr. Lloyd A. Giltner, Chairman
Dr. H. A. Norum, Vice-Chairman
Dr. George H. Hilts
Dr. Richard H. Leigh
Dr. C. J. Baumgartner
Dr. Paul J. Beithon

Reference Committee to Consider Reports of the Committee on Medical Economics, Advisory Committee to Public Assistance, Division of State Welfare Board, Committee on Rural Health, and the Governor's Health Planning Committee

Dr. A. C. Burt, chairman, presented the following reports and their discussions, which were adopted section by section and as a whole.

1. *Report of the Committee on Medical Economics.* This report, including the Advisory Committee to Public Assistance division of the State Welfare Board, was reviewed. The decision to delay any change in the Relative Value Schedule was noted. They deemed it advisable to await the new California Relative Value Schedule, with the hope that their endeavors would help solve some of the problems in this field. The paragraph concerning welfare department costs of drugs and hospital and nursing home care was reviewed. It was noted by the committee that it seemed desirable that closer relations, active participation, and personal influence with the state and local welfare boards is imperative, and encouragement should be given to medical men to serve on the local boards. It was noted by the committee that no comment had been made concerning the liberalization of the Kerr-Mills bill as applied to the state of North Dakota regarding income limitations. It was felt that this should be accomplished by the Com-

mittee on Medical Economics or whatever committee involved. This portion of the report was adopted.

2. *Report of the Committee on Rural and School Health.* This committee held no meetings during the year. This portion of the report was adopted.

3. *Report of the Governor's Health Planning Committee.* Notice was taken that the remainder of the Hill-Burton funds, amounting to $550,000 had been disbursed to the St. Joseph's Hospital at Dickinson, terminating all funds allocated to the state. This committee will remain inactive unless, and until, the next Congress appropriates more funds. This portion of the report was adopted.

The motion was made by Dr. Burt and seconded by Dr. Sandmeyer that the report be adopted as a whole.

Dr. A. C. Burt, Chairman
Dr. E. G. Vinje, Vice-Chairman
Dr. A. R. Neuenschwander, alternate
Dr. J. A. Sandmeyer
Dr. James V. Miles, Jr., alternate

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

Dr. Nugent, chairman of the committee, presented the following resolutions:

RESOLUTION No. 1

Whereas, the members of the North Dakota State Medical Association attending the seventy-seventh annual meeting of this association in Minot have enjoyed the hospitality and consideration of this great city, and

Whereas, the mayor of Minot and his associates, the press, radio, hotels, and businessmen have contributed to make this session a memorable one,

Now, therefore, be it resolved that the House of Delegates express its appreciation by directing a copy of this resolution to the honorable mayor of Minot.

This resolution was adopted.

RESOLUTION No. 2

Whereas, the members of the North Dakota State Medical Association anticipate the increase in scientific knowledge to be gained from attendance at the various exhibits, and

Whereas, the exhibitors have shown unusual effort and ingenuity in developing their exhibits and thereby adding to the scientific interest at this meeting,

Now, therefore, be it resolved that the North Dakota State Medical Association extend to these exhibitors our hearty welcome and thanks, and

Be it further resolved that a copy of this resolution be sent to each exhibitor.

This resolution was adopted.

RESOLUTION No. 3

Whereas, Dr. Amos R. Gilsdorf, president of the North Dakota State Medical Association for the year 1963-1964, did, in the years prior to his term of office, show an unusual interest and activity in the affairs of the association, and

Whereas, with the help of his knowledge and concern of the problems relating to the practice of medicine in North Dakota, and the complete dedication to the fulfillment of his office, Dr. Gilsdorf did in such an exemplary manner lead this association through the past year,

Now, therefore, be it resolved that the assembled delegates show their appreciation by a rising vote of thanks.

A rising vote of thanks adopted this resolution.

RESOLUTION No. 4

Whereas, the members of the North Dakota State Medical Association attending the seventy-seventh annual meeting have thoroughly enjoyed and profited by an excellent scientific program, and

Whereas, the host, the Fourth District Medical Society, and the various chairmen and committeemen have excelled in providing the members of the Association with the niceties of a gracious convention,

Now, therefore, be it resolved that the assembled delegates demonstrate their appreciation by rising a vote of thanks.

A rising vote of thanks adopted this resolution.

RESOLUTION No. 5

Whereas, the ladies of the Woman's Auxiliary to the North Dakota State Medical Association, through diligent and continuous effort over the past thirteen years of their existence, have raised the sum of over $27,000 for the Medical Auxiliary Student Loan Fund of the Medical School of the University of North Dakota and in the past year have accumulated over $2,000 and further have donated over $300 to the American Medical Association Education fund, and

Whereas, these funds have enabled many medical students to complete their medical education, and

Whereas, the Woman's Auxiliary, during the past year, has distributed 395 information kits covering medical care plans for the aged to the high school debate teams over the state, which project was most commendable, and

Whereas, the auxiliary units throughout the state have participated in many other commendable projects which reflect credit to their organization and to the medical profession,

Now, therefore, be it resolved that the House of Delegates of the North Dakota State Medical Association convey to the Woman's Auxiliary our appreciation and thanks for their excellent work, and

Be it further resolved that a copy of this resolution be directed to Mrs. Flerita Hankins and her successor.

This resolution was adopted.

RESOLUTION No. 6

Whereas, the Committee on Legislation has been effective in watching proposed bills which may affect the practice of medicine in North Dakota and has analyzed such bills and reported to the physicians of North Dakota the results of such analysis, and

Whereas, the Committee on Legislation has actively supported or opposed legislation based upon such analysis, and

Whereas, the Committee on Legislation has found that the most effective means of influencing legislation is through direct contact from a legislator's own physician,

Now, therefore, be it resolved that the chairman of the Committee on Legislation attempt to ascertain "key" men in each district who may assist in this program, and

Be it further resolved that each component society be urged to furnish to the chairman of this committee the names of such "key" men.

This resolution was adopted.

RESOLUTION No. 7

Whereas, the North Dakota State Medical Association has no instruction manual for the members of the House of Delegates, and

Whereas, many members are not informed concerning the business or procedures of the House of Delegates,

Now, therefore, be it resolved that the executive secretary of the North Dakota State Medical Association be instructed to prepare information and directives for members of the House of Delegates, its officers, and reference committees and include such instructions with the handbook of reports for the members of the House of Delegates.

This resolution was adopted.

Dr. Nugent made the motion that the report as a whole be adopted. The motion was seconded by Dr. Painter and carried.

Dr. M. E. Nugent, Chairman
Dr. R. C. Painter, Vice-Chairman
Dr. M. H. Poindexter, Jr.
Dr. J. N. Elsworth
Dr. R. E. Hankins

Dr. T. E. Pederson was introduced. His remarks follow:

Dr. Tom Pederson: "I welcome this opportunity to speak to you. I know that as we increasingly involve ourselves in various organizations at home, we become aware of the good they are doing. The more we involve ourselves, the more we are aware of the need of these organizations. This is true also of the district society. I think there is a need for direct basic guidelines. We then come to the state association with the thinking of our district society. We deliberate the works of these committees. We then come to this occasion and further implement the works of these committees, and I think we see the need at a state level for the job we are doing. We then appoint a representative to the parent body of the AMA House of Delegates. He goes there to represent you as best he can.

"There are thousands of physicians about the United States who work on various committees. They come together with the reports of their deliberations. These deliberations are reviewed at length by reference committees of the house, as you do here in the House of Delegates. Certain recommendations are made to the Board of Trustees, the executive body of the AMA, who sees that these various recommendations are implemented.

"It is inconceivable that the AMA Board of Trustees could be appointed by the various states. They are the working arm, elected by the AMA House of Delegates, and the AMA staff which is composed of 850 hard-working dedicated people carries out the recommendations by the AMA House of Delegates.

"We have a staff of 4 in our North Dakota state office and a budget of $47,000. The AMA has a budget of $21 million. This comes from dues of members of the AMA. It is not possible for all of you to attend the House of Delegates of the AMA, but I would urge you if you are ever in the vicinity of a meeting of the AMA to attend.

"It is a terrifically dynamic organization and one for which we have a crying need. Dr. Painter and I try to interpret your thinking at the national level. We ask for your help. We ask for your direction and are in need of this. If there are things about which you feel we should be a little more forceful, we wish you would let us know. I would urge this body to read the proceedings of the House of Delegates which comes out in the journal two weeks after the meeting. After having familiarized yourself with the proceedings of the House of Delegates, we urgently request that you notify us of your thinking.

"I am convinced that we live in a Utopia. I am convinced that the North Dakota physicians provide the best medical attention in the United States. We have a sympathetic legislative body in the state to work with. I think it is imperative that we continue to do what we can to see that our legislative bodies are in sympathy with us, as practicing physicians. We are interested in the health of the people. We should be interested at a state level, as well as a district level.

"It is a pleasure to be your representative to the AMA, and any help you can give either Dr. Painter or myself we would appreciate very much.

"Mr. Charles Johnson is a working member of the staff of the AMA. I feel it would be appropriate to have Charles speak to you now and specifically speak on the point brought up this afternoon regarding the AMA lobbying."

Speaker Christoferson next introduced Mr. Charles Johnson of Chicago whose remarks follow:

MR. CHARLES JOHNSON: "I could not be more agreeable with everything you said, Dr. Pederson. I appreciate that introduction and your reference to the staff of the AMA. As a member of the staff we hope that each one of you individually or as a representative of your district society will let us know at 535 North Dearborn, Chicago, any constructive criticism or ideas you may have about the functioning of the staff. We are your employees, and we hope you will use your prerogative of voicing criticism or ideas.

"Dr. Pederson was talking about the size of your AMA and state organization increasing from time to time, and in the future these are going to increase the problems. As they tend to increase, they are going to require more of your time, energy, and finances.

"It was said at one of the meetings this morning, that the public had begun to believe that professional services were their right and should be furnished by the government. I think in this country we feel that medicine is their own business. Everyone wants to be informed in the health care of this country. Many groups go across the country today surveying this and that, having to do with the field of health care. If doctors do not guide and control all these efforts to find out about the health care of the people, someone who is not medically connected is going to make the decisions. This is the challenge we are all going to face in the future. You are going to see these problems increase as we go along.

"In regard to the AMA lobbying, this was brought up as a result of the Kiplinger stories some time ago that the AMA lobbying was a trifle heavy-handed. The lobbying is done by four or five men in Washington. The old term, or connotation, of a lobbyist is a man who has some means at his disposal to bring pressure to bear on an elected official. These men have no pressure to bear on any official in Washington. They have nothing to work with; they only listen and try to convey these problems back to the AMA office. We relay them back to you to find a solution. The other part of the lobbying is what you have mentioned here today—in your own organizations in your own home. It is your right to support or not to support. You can not be denied this, and I would not hesitate from nor be afraid of criticism of this type. It is everyone's right to carry this on, and you cannot let down.

"You mentioned, Dr. Countryman, that the lobbying should be broadened. Let me say this unofficially, this is being done. The AMA is not by itself in the lobbying. Many organizations are with us. Many other types of conservative business groups share in this interest with the AMA. Representatives of these groups do get together and talk it over and decide how to act. I do not believe at present it would be wise to change that.

"I appreciate the fact that I have been allowed to meet with you again this week. You have had a most informative and successful meeting up to this point. I shall certainly hope I can meet again with you in the future."

Dr. Christoferson next introduced Dr. Evans who spoke briefly about the Rehabilitation Unit in Grand Forks.

DR. EVANS: "This morning I appeared before the council with a message, and they requested that I appear before you to carry the message to you.

"That message is: Let us support our Rehabilitation Unit. We, in North Dakota, have excellent facilities for rehabilitating the injured, the crippled, and the disabled. These facilities are located in the Rehabilitation Center in Grand Forks. Many of you have visited this Rehabilitation Unit, but very few of you have ever referred patients there.

"Since 1962 we have had 41 patients. All patients who are admitted will receive expert medical attention from specialists. The aim of the Rehabilitation Center is to achieve the maximum recovery from any disabling injury or illness. Miss Landon has prepared an exhibit at the scientific hall and I hope each one of you will visit this display.

"From a practical standpoint, the rehabilitation equipment is paid for with your tax dollars. Utilization by you of these facilities will provide encouragement and help for your patients and will provide justification for tax funds in the past and abolish the need for further support of taxes for this unit. Please carry this message back to your district societies. Let us support and utilize our Rehabilitation Center."

Dr. Buckingham next read the following message from Mr. Tom Kleppe, Bismarck: "Dr. Amos Gilsdorf, Minot, North Dakota. Please extend my very best wishes to all members at your meeting in Minot. Good luck to all of you in these important sessions. I look forward to seeing all of you later on."

The treasurer's report was presented by Dr. Nierling as follows:

Dr. Nierling: "Dr. Christoferson asked me yesterday to report to you on the financial condition of the association and also as a recommendation for the dues of 1965. You are all interested in money but not interested in figures.

"I may say, however, that the budget for $47,840 shows an increase of around $2,300 over the 1963 budget. We were able to come out ahead in the budget of 1963 by the sum of $1,000. The feeling is that this year, in 1964, Lyle has made out an estimate of expenditures, and there is a possibility that we may end up a little in the red. We have about 450 physicians who are regular members of the association, and that is almost the entire extent of our funds this year. The entire funds come from dues each year. We get about $44,000 from the dues at $100 per regular member. In 1963 we collected $44,960 in dues. If we did the same in 1964, with a budget of $47,000, we would be a little in the red. Knowing, however, how Lyle spends the budget in the year, I doubt if we will end up in the red. If we do, it will not be very much. If we do, it can be taken care of by several means. We have 3 CDs [certificates of deposit] now, 2 in Bismarck and one in Jamestown. Lyle has purchased CDs by saving a little each year and has about $10,000 in 2 CDs in the banks in Bismarck that could be used if we find it necessary.

"During the course of the past year, at the suggestion of the council, we sold some of the bonds we had in our possession, for the purpose of putting this money of $4,000 in CDs to gain a higher rate of interest. At the recommendation of one of the bank presidents we sold that amount but we did not sell the rest of them for various reasons. Some of them are about to become due. Some are at a higher rate of interest. All of this information you can find in the handbook. I also have a few copies of this information and also some copies of the payment of dues to April 30. We have 424 regular members who have paid their dues to date and there is a possibility of a few from each district that have not come in yet.

"The council, therefore, has decided, and the treasurer agrees, that the dues of $100 which have been in effect for the past several years should be adequate to cover the expenses for 1965 and recommends that the dues be kept at the present amount of $100."

The motion that the dues be kept at the present level of $100 was made by Dr. Kulland, seconded by Dr. Giltner, and passed.

Mr. Limond was called on for a report from the State Board of Medical Examiners.

Lyle Limond: "As you know, I am the secretary-treasurer of the State Board of Medical Examiners. My part in this program is in the licensing of physicians in North Dakota by the membership as a whole. There are certain rules and regulations established by the Board of Medical Examiners; one rule is that doctors of medicine coming from non-English speaking countries must take the ECFMG, or Examination of the Educational Council for Foreign Medical Graduates. This is one of the rules of the board.

"I wish you would take a message home that at any time you are in doubt just drop a line to Box 1198, the same as the North Dakota State Medical Association, and we would be glad to answer your query as to anything in regards to licensing. We would also be glad to find a physician for towns without a physician through the State Board and also the Placement Bureau.

"The Board meets in January and July by the statutes. Our classes meeting in the wintertime do not have as many prospective licentiates appearing. In January the total was 13, and this July there will be 28 or 29 appearing.

"That is the extent of my report."

The next order of business was the presentation of a check to Dr. Harwood by Dr. Dodds, representing contributions by physicians for medical education. The check, in the amount of $4,470.86, was received by Dr. Harwood with the following comments:

Dr. Harwood: Thank you very much, Dr. Dodds, and all of you people who helped get this money together. Several deans in various states have a similar fund, and it is very precious to all of us. This is a reasonably comfortable amount to help us to do things for medical education which we feel would be impossible otherwise. Thank you very much.

Dr. Christoferson announced that in keeping with the decision at the last meeting, an interim meeting will be held, in accordance with the president's wishes, in Fargo on Sunday, December 13, at 10 A.M. He added that the place of meeting would be given at a later date. He stated that the purpose of this meeting was for discussions concerning matters to be brought up before the next session of the state legislature.

The speaker then acknowledged the invitation from Grand Forks for the next annual meeting in May 1965. He then entertained an invitation for the meeting to be held in 1966. The association was invited by Dr. Burt, on behalf of the First District, to meet in Fargo in 1966.

Dr. Sandmeyer moved that the invitation to meet in Fargo be accepted. The motion was seconded by Dr. Norum and carried.

The following is the report of the Nominating Committee. The slate of nominees, as presented by the Nominating Committee, was voted on singly as follows:

President	G. Alfred Dodds, Fargo
President-Elect	Joseph D. Craven, Williston
First Vice-President	G. W. Toomey, Devils Lake
Second Vice-President	V. J. Fischer, Minot
Secretary	William M. Buckingham, Bismarck
Treasurer	R. D. Nierling, Jamestown
Delegate to the AMA	T. E. Pederson, Jamestown
Alternate Delegate to the AMA	Robert Painter, Grand Forks
Speaker of the House of Delegates	Lee Christoferson, Fargo
Vice-Speaker of the House	C. H. Peters, Bismarck

BOARD OF MEDICAL EXAMINERS

The following 9 names were to be submitted to the governor for the 3 physicians whose terms expire in 1964:

F. D. Naegeli, Minot
R. F. Nuessle, Bismarck
R. C. Painter, Grand Forks
W. C. Dailey, Grand Forks

George Countryman, Grafton
Tom Pederson, Jamestown
C. J. Klein, Valley City
Robert Fawcett, Devils Lake
Paul Beithon, Wahpeton

The members were asked if there were any additional nominations for any of these positions. Dr. Giltner asked that the names of Drs. R. E. Leigh and K. Vandergon, both of Grand Forks, be added to the list of nominees.

Dr. Hanewald moved that all of the nominees be elected by unanimous ballot. The motion was passed.

Dr. Hill next submitted the following members as nominees to be presented to the governor for a post on the State Health Council: Drs. R. F. Gilliland, Dickinson; R. S. Woodward, Jamestown; and G. U. Ivers, Fargo. Dr. Nugent moved that the nominees be elected unanimously. The motion was seconded by Dr. Larson and passed.

Dr. P. H. Wontat, Grand Forks, was nominated to serve on the Medical Center Advisory Council. It was moved by Dr. Countryman and seconded by Dr. Leigh that Dr. Wontat be elected unanimously. This motion was passed.

Nominated as councillors were Drs. Foster, Ninth District; Dean Strinden, Eighth District; W. R. Fox, Second District; and J. M. Van der Linde, Seventh District.

The members were asked if there were any additional nominations; if not, a motion would be entertained that the nominees be elected.

Dr. Hanewald moved that the councillors be elected unanimously. The motion was seconded by Dr. Sandmeyer and carried.

At this time Speaker Christoferson conveyed his thanks and the thanks of the House of Delegates to Lyle Limond and his capable staff for their valuable assistance during the past year. He asked the members for a standing ovation to Mr. Limond. Dr. Christoferson extended his thanks to the delegates and also to the chairmen of the various committees for their assistance during the past year.

At this time Dr. Hanewald requested that the following be added to the minutes of the House of Delegates.

From SOUTHWEST DISTRICT
NORTH DAKOTA STATE MEDICAL ASSOCIATION
May 1, 1964

To: Dr. Amos R. Gilsdorf, President
North Dakota State Medical Association

The Southwest District Medical Association wishes to express its appreciation to you, not only for the excellent job that you have done as president of the North Dakota State Medical Association but also your many efforts in behalf of our own Southwest District Society and your guidance in the conduct of the business during the time the state meeting was held in Dickinson.

The Southwest District Society presents this letter with its best wishes and hopes for your continued health and happiness.

A. C. Sawchuk, M.D.
President
H. L. Reichert, M.D.
Vice-President
R. F. Raasch, M.D.
Secretary

W. C. Hanewald, M.D.
Delegate
R. E. Hankins, M.D.
Delegate

There being no further business, it was moved by Dr. Nugent and seconded by Dr. Dahl that the meeting be adjourned. Adjournment was at 5 P.M.

Scientific Program

MONDAY, MAY 4, 1964
Municipal Auditorium, Minot

8:30 A.M.—Registration

9:00 to 9:15 A.M.—Welcome from Mr. C. D. Johnson, mayor of Minot, and Dr. G. R. Richardson, president, Northwest District Medical Society, Minot.

9:15 to 9:45 A.M.—"Methods and Indications for Split Thickness, Full Thickness and Flap Skin Grafting," Donald L. Lamb, M.D., Fargo

9:45 to 10:15 A.M.—"Newest Perspectives in Diabetes with Comments on Synthetic Insulin and Oral Agents," Thomas P. Sharkey, M.D., Dayton, Ohio, president of the American Diabetes Association

10:15 to 11:00 A.M.—Intermission

11:00 to 11:45 A.M.—"Experiences Aboard SS Hope," Malcolm McCannel, M.D., Minneapolis

11:45 to 12:15 A.M.—"Treatment of Complications of Tonsillectomy-Adenoidectomy," John B. Gregg, M.D., Sioux Falls, S.D.

NOON RECESS

2:00 to 2:30 P.M.—"Treatment of Diarrhea in Infancy," Frederic J. Burke, M.D., Washington, D.C.

2:30 to 3:00 P.M.—"New Advances in Laboratory Diagnosis," Louis S. Smith, M.D., Dallas, Texas

3:00 to 3:45 P.M.—Intermission

3:45 to 4:30 P.M.—"Growing Up Gracefully," Alvin B. Hayles, M.D., Mayo Clinic, Rochester, Minn.

TUESDAY, MAY 5, 1964
Municipal Auditorium, Minot

8:30 A.M.—Registration

9:30 to 10:00 A.M.—"Treatment of Fractures about the Wrist," E. P. Wenz, M.D., Fargo

10:00 to 10:30 A.M.—"Lumbar Intervertebral Disc Disease," Lee Christopherson, M.D., Fargo

10:30 to 11:15 A.M.—Intermission

11:15 to 12:00 A.M.—"Prognosis and Treatment of Rheumatoid Arthritis," Russell L. Cecil, M.D., New York. (Sponsored by the North Dakota Arthritis and Rheumatism Foundation)

NOON RECESS

2:00 to 2:45 P.M.—"Masked Hyperthyroidism," Lloyd S. Ralston, M.D., Bismarck

2:45 to 3:15 P.M.—Intermission

3:15 to 4:15 P.M.—Panel Discussion
Subject: "Low Back Pain"
Members: E. P. Wenz, M.D., Fargo; Lee Christopherson, M.D., Fargo; and Russell L. Cecil, M.D., New York

A grant has been made available by Eli Lilly and Company to assist in presenting the scientific program.

North Dakota State Medical Association Roster—1964

MEMBERSHIPS BY DISTRICTS

First District

Amdon, Blaine F.	Dakota Clinic, Fargo
Armstrong, William B.	850 Conobabi Dr., Samalayuca Estates, Tucson, Ariz.
Bacheller, Stephen C.	Enderlin
Bakke, Hans	Lisbon
Barnard, Donald M	Fargo Clinic, Fargo
Beithon, Elmer J.	Red River Valley Clinic, Wahpeton
Beithon, Paul J.	Red River Valley, Clinic, Wahpeton
Beithon, R. Bruce	Fairmount Cilnic, Fairmount
Beltz, Melvin E.	Wahpeton Clinic, Wahpeton
Borland, Verl G.	Fargo Clinic, Fargo
Burt, Arthur C.	Medical Arts Bldg., Fargo
Bushell, Robert P.	Fargo Clinic, Fargo
Christoferson, Lee A.	700 First Ave. So., Fargo
Christu, Chris M.	Fargo Clinic, Fargo

Crim, Eleanor M.	1405 Seventeenth Ave. So., Fargo
Darrow, Kent E.	Dakota Clinic, Fargo
DeCesare, Francis A.	Dakota Clinic, Fargo
Dillard, James R.	Medical Arts Bldg., Fargo
Dodds, G. Alfred	Fargo Clinic, Fargo
Donat, T. L.	Medical Arts Bldg., Fargo
Ehlen, Matt J.	Fargo Clinic, Fargo
Engstrom, Perry H.	Red River Valley Clinic, Wahpeton
Fercho, Calvin K.	Medical Arts Bldg., Fargo
Fortney, Arthur C.	Fargo Clinic, Fargo
Foster, George C.	15 Broadway, Fargo
Gaebe, Robert C.	700 First Ave. So., Fargo
Geib, Marvin J.	700 First Ave. So., Fargo
Geston, Robert L.	402 Sheyenne St., West Fargo
Gillam, John S.	Fargo Clinic, Fargo
Goff, John R.	Fargo Clinic, Fargo
Goltz, Neill F.	Fargo Clinic, Fargo
Gustafson, Maynard B.	700 First Ave. So., Fargo
Hall, G. Howard	Fargo Clinic, Fargo
Hamilton, Thomas M.	Fargo Clinic, Fargo
Hawn, Hugh W.	Gate City Bldg., Fargo
Haynes, George H.	Lisbon
Heilman, Charles O.	Fargo Clinic, Fargo
Houghton, James F.	Dakota Clinic, Fargo
Hunter, C. M.	Medical Arts Bldg., Fargo
Hunter, G. Wilson	Fargo Clinic, Fargo
Irvine, Vincent S.	Lidgerwood
Ivers, George U.	424 DeLendrecie Bldg., Fargo
Ivers, Robert R.	700 First Ave. So., Fargo
Jaehning, David G.	Hotel Wahpeton, Wahpeton
Jordheim, Robert	Fargo Clinic, Fargo
Kelly, William A.	Medical Arts Bldg., Fargo
Kohlmeyer, Albert C.	700 First Ave. So., Fargo
Kulland, Roy E.	402 Sheyenne St., West Fargo
Lamb, Donald L.	Medical Arts Bldg., Fargo
Lancaster, W. E. G.	Fargo Clinic, Fargo
Landa, Marshall	Dakota Clinic, Fargo
Lane, Mark H.	700 First Ave. So., Fargo
Larson, G. Arthur	Medical Arts Bldg., Fargo
Lawrence, Donald H.	Medical Arts Bldg., Fargo
LeBien, Wayne E.	Fargo Clinic, Fargo
LeMar, John D.	Fargo Clinic, Fargo
Lewis, A. K.	Lisbon
Lewis, T. H.	302 Black Bldg., Fargo
Lindsay, Douglas T.	Fargo Clinic, Fargo
Lytle, Francis T.	Fargo Clinic, Fargo
McMahon, John M.	Dakota Clinic, Fargo
Macaulay, Warren L.	Fargo Clinic, Fargo
Madison, James F.	Fargo Clinic, Fargo
Magill, Gordon B.	Medical Arts Bldg., Fargo
Magness, John L.	Dakota Clinic, Fargo
Mazur, Bernard A.	Dakota Clinic, Fargo
Melton, Frank M.	Dakota Clinic, Fargo
Miller, Herbert H.	509½ Dakota Ave., Wahpeton
Miller, Joseph W.	Dakota Clinic, Fargo
Murray, James B.	Dakota Clinic, Fargo
Nagle, Duane W.	Fargo Clinic, Fargo
Norum, Henry A.	Fargo Clinic, Fargo
O'Hearn, Jerome W.	Fargo Clinic, Fargo
Oliver, James	Dakota Clinic, Fargo
Owens, Walter L.	Dakota Clinic, Fargo
Palmer, Wesley J.	Lisbon
Poindexter, Marlin H.,	Fargo Clinic, Fargo
Poole, Ernest E.	Lidgerwood
Pray, Laurence G.	Fargo Clinic, Fargo
Rogers, Robert G.	Dakota Clinic, Fargo
Schleinitz, Fritz B.	Hankinson
Schneider, Joseph F.	Medical Arts Bldg., Fargo
Sedlak, Oliver A.	109 Roberts St., Fargo
Seifert, Richard H.	Medical Arts Bldg., Fargo
Sessums, John V., Jr.	Dakota Clinic, Fargo
Shook, Lester D.	Fargo Clinic, Fargo
Spier, J. J.	1345 No. 5th St., Fargo
Stafne, William A.	Fargo Clinic, Fargo
Story, Robert D.	Fargo Clinic, Fargo
Swanson, Joel C.	1220 So. 8th St., Fargo
Thompson, George R.	Fargo Clinic, Fargo
Thorfinnson, Hugh D.	Medical Arts Bldg., Fargo
Traynor, Mack V.	Fargo Clinic, Fargo
Triggs, Perry O.	Fargo Clinic, Fargo
Ulmer, Robert J.	Dakota Clinic, Fargo
Veitch, Abner	Lisbon
Wall, Wendell H.	Wahpeton Clinic, Wahpeton
Wasemiller, E. R.	Wahpeton Clinic, Wahpeton
Webster, William O.	Fargo Clinic, Fargo
Weible, Earl B.	Abercrombie
Weible, Ralph D.	Dakota Clinic, Fargo
Wenz, E. P.	Dakota Clinic, Fargo
Wenzel, James B.	Dakota Clinic, Fargo
Weyers, Henry J.	Medical Arts Bldg., Fargo
Williams, N. S.	Dakota Clinic, Fargo
Wiltse, Glenn L.	Wahpeton Clinic, Wahpeton
Wold, Lester E.	Fargo Clinic, Fargo
Zauner, Richard J.	Medical Arts Bldg., Fargo

Second District

Cook, Stuart J.	Rolette
Corbett, Conner A.	Lake Region Clinic, Devils Lake
Coultrip, Raymond L.	McVille
Engesather, John A. D.	Lakota
Eylands, Jon V.	Johnson Clinic, Rugby
Fawcett, John C.	Lake Region Clinic, Devils Lake
Fawcett, Robert M.	Lake Region Clinic, Devils Lake
Fox, William R.	Johnson Clinic, Rugby
Gilbertson, Ernest V.	Lake Region Clinic, Devils Lake
Gilchrist, Milton R.	2288 Overlook Dr., Minneapolis
Gorrie, William A.	Maddock
Hillman, R. S. Lyle	Johnson Clinic, Rugby
Hilts, George H.	Cando
Johnson, Christian G.	Johnson Clinic, Rugby
Kihle, Kenneth W.	Bottineau
Lazareck, I. L.	411 Fourth Ave., Devils Lake
Lind, Jackson W.	Bottineau
Longmire, L. T.	411 Fourth Ave., Devils Lake
Lund, A. B.	Leeds
McBane, Robert D.	Lake Region Clinic, Devils Lake
McIntyre, Donald G.	Johnson Clinic, Rugby
Mahoney, James H.	411 Fourth Ave., Devils Lake
Mari, Justo L.	Bottineau
Martin, George V.	Michigan
Miller, C. Robert	Bottineau
Neuenschwander, Allen R.	Rolla
Owens, Clarence G.	New Rockford
Pine, Louis F.	Lake Region Clinic, Devils Lake
Sawchuk, John	Rolette
Schwinghamer, E. J.	New Rockford
Seibel, Glenn W.	New Rockford
Sihler, William F.	Devils Lake
Terlecki, Jaroslaw	Minnewaukan
Toomey, Glenn W.	Lake Region Clinic, Devils Lake
Towarnicky, Marvin J.	Fessenden
Turkula, William	Lake Region Clinic, Devils Lake
Voglewede, William C.	Carrington
Wolf, Jerry D.	Bottineau

Third District

Barrie, James G.	Park River
Benson, Theodore Q.	1600 University Ave., Grand Forks

Bowes, H. Angus	1600 University Ave., Grand Forks
Campbell, Duncan W.	Grand Forks Clinic, Grand Forks
Clark, Rodney	Grand Forks Clinic, Grand Forks
Clayburgh, Ben J.	Grand Forks Clinic, Grand Forks
Countryman, G. L.	1004 Hill Ave., Grafton
Culmer, A. E., Jr.	501 First National Bank Bldg., Grand Forks
Dailey, Walter C.	Valley Medical Associates, Grand Forks
DeLano, Robert H.	Northwood
Doss, R. Douglas	1600 University Ave., Grand Forks
Eaton, L. P.	Grafton Clinic, Grafton
Engelstad, Orlyn D.	U.N.D., Grand Forks
Evans, Harold W.	Grand Forks Clinic, Grand Forks
Flaten, Alfred N.	Edinburg
Glaspel, Cyril J.	Grafton Clinic, Grafton
Goehl, R. O.	Grand Forks Clinic, Grand Forks
Graham, C. M.	1600 University Ave., Grand Forks
Graham, John H.	Valley Medical Associates, Grand Forks
Grinnell, Ernest L.	Grand Forks Clinic, Grand Forks
Hardy, Nigel A.	Minot
Harwood, Theodore H.	U.N.D., Grand Forks
Haugen, C. O.	Larimore
Haunz, Edgar A.	Grand Forks Clinic, Grand Forks
Helenbolt, Kenneth S.	1600 University Ave., Grand Forks
Helgason, Norman M.	Cavalier
Helm, Richard K.	Valley Medical Associates, Grand Forks
Hill, Frank A.	Grand Forks Clinic, Grand Forks
Jensen, August F.	Mesa, Arizona
Johnson, Daniel H.	Cavalier
Kaluzniak, Nicholas	Langdon
Kana, Dale C.	Grafton Clinic, Grafton
Keig, William P., Jr.	1600 University Ave., Grand Forks
Krahn, Henry	Walhalla
Lambie, John A.	Grand Forks Clinic, Grand Forks
Landry, L. H.	Walhalla
Larson, Eric J.	Cavalier
Leigh, James A.	111 No. Fifth St., Grand Forks
Leigh, Ralph E.	111 No. Fifth St., Grand Forks
Leigh, Richard H.	1600 University Ave., Grand Forks
Lorentson, Carl E.	Grand Forks Clinic, Grand Forks
McKay, John F.	703 So. 4th St., Grand Forks
McLeod, John	Grand Forks Clinic, Grand Forks
Mahowald, Ralph E.	1400 Grand Ave., Grand Forks
Mann, Hamish	1600 University Ave., Grand Forks
Marshall, Robert A.	Valley Medical Associates, Grand Forks
Meredith, William C.	Drayton
Muus, Jacob M.	McVille
Muus, O. Harold	502 Commercial Exchange Bldg., Grand Forks
Natarajan, Rangasamy	1600 University Ave., Grand Forks
Nelson, Wallace W.	Grand Forks Clinic, Grand Forks
Nelson, William C.	Grand Forks Clinic, Grand Forks
Obert, Gerard J.	U.N.D., Grand Forks
Olson, James R.	Grand Forks Clinic, Grand Forks
O'Toole, James K.	2707 Belle, Topeka, Kansas
Painter, Robert C.	Grand Forks Clinic, Grand Forks
Panek, A. F.	Milton
Peake, Frances M.	201 Widlund Bldg., Grand Forks
Penners, John H.	Grand Forks Clinic, Grand Forks
Peterkin, Frank D.	Langdon
Pettit, Samuel L.	Grand Forks Clinic, Grand Forks
Piltingsrud, Harold R.	Park River
Pinsonneault, Wilfrid A	Drayton
Porter, Charles B.	Grand Forks Clinic, Grand Forks
Powers, William T.	Valley Medical Associates, Grand Forks
Prochaska, Leonard J.	517 First National Bank Bldg., Grand Forks
Rand, Charles Clinton	State School, Grafton
Ruud, John E.	First National Bank Bldg., Grand Forks
Sandmeyer, John A.	Grand Forks Clinic, Grand Forks
Saiki, A. K.	U.N.D., Grand Forks
Sande, C. W.	Northwood
Schafer, Thomas	Grand Forks Clinic, Grand Forks
Scheflo, Myron W.	1004 Hill Ave., Grafton
Silverman, Louis B.	Grand Forks Clinic, Grand Forks
Szyrynski, Victor	U.N.D., Grand Forks
Tarpley, Harold I.	Valley Medical Associates, Grand Forks
Teevens, William P.	Grafton Clinic, Grafton
Thorgrimsen, G. G.	1600 University Ave., Grand Forks
Tompkins, C. R.	1004 Hill Ave., Grafton
Vandergon, Keith G.	1400 Grand Ave., Grand Forks
Wasdahl, Walter	U.N.D., Grand Forks
Webber, Freeman B.	Harvey
Wilson, George A.	Grand Forks Clinic, Grand Forks
Woutat, Philip H.	Grand Forks Clinic, Grand Forks
Youngs, Nelson A.	Grand Forks Clinic, Grand Forks

Fourth District

Allport, F. W.	Towner
Amstutz, Kenneth N.	Northwest Clinic, Minot
Ayash, John J.	123 Second Ave., S.E., Minot
Barnes, James A.	Medical Arts Clinic, Minot
Bermudez, Enrique	Garrison Clinic, Garrison
Blatherwick, Robert	Parshall
Boyle, John T.	Garrison
Boyum, Lowell E.	Harvey Medical Center, Harvey
Breslich, Paul J.	Northwest Clinic, Minot
Briggs, Brian E.	Main Medical Bldg., Minot
Cameron, Angus L.	Northwest Clinic, Minot
Cameron, A. Malcolm	Northwest Clinic, Minot
Devine, John L., Jr.	Great Plains Clinic, Minot
Dormont, Richard E.	Northwest Clinic, Minot
Erenfeld, Fred R.	617 Second St. N.W., Minot
Fischer, V. J.	Medical Arts Clinic, Minot
Flath, Milford G.	Stanley
Flickinger, Dale B.	Medical Arts Clinic, Minot
Fumerton, J. L.	Medical Arts Clinic, Minot
Gammell, Robert T.	Kenmare
Garrison, M. W.	Garrison Bldg., Minot
Giltner, Lloyd A.	Medical Arts Clinic, Minot
Goodman, Robert	Powers Lake
Gozum, Ekrem	123 Second Ave., S.E., Minot
Halliday, David J., Jr.	Kenmare
Halverson, C. H.	401 So. Main, Minot
Hammargren, August F.	Harvey Medical Center, Harvey
Hart, George M.	Northwest Clinic, Minot
Heidorn, G. H.	Main Medical Bldg., Minot
Hoopes, Lorman L.	17A So. Main St., Minot
Hordinsky, Bohdan Z.	Drake
Huntley, W. B.	315 So. Main St., Minot
Hurly, William C.	Medical Arts Clinic, Minot
Huss, Bernard, Jr.	Medical Arts Clinic, Minot
Jayapathy, B.	Main Medical Bldg., Minot
Johnson, O. W.	Johnson Clinic, Rugby
Keck, Stanley W.	Northwest Clinic, Minot
Kermott, L. H., Jr.	401 So. Main St., Minot
Kohl, D. L.	123 Second Ave. S.E., Minot
Lampert, M. T.	407 First National Bank Bldg., Minot
LaRochelle, William D	Stanley
Larson, Richard S.	Velva

Leonard, Kenneth O.	Garrison Clinic, Garrison
Leonard, Kermit	Garrison Clinic, Garrison
Loeb, George L.	11638 S.E. 52nd St., Bellevue, Wash.
London, Carl B.	Northwest Clinic, Minot
Matthaei, Daniel W.	Fessenden
Naegeli, Frank D.	Northwest Clinic, Minot
Nazli, Mehmet	St. Joseph's Hospital, Minot
Odegard, Russell L.	Great Plains Clinic, Minot
Olson, Burton G.	McCannel Clinic, Minot
Peterson, Myron D.	Medical Arts Clinic, Minot
Richardson, Gale R.	Main Medical Bldg., Minot
Ringo, G. Roy	119-A So. Main St., Minot
Rioux, Berchmans	14A So. Main St., Minot
Rowe, Paul H.	Northwest Clinic, Minot
Sahl, Jens, Jr.	Northwest Clinic, Minot
Shea, Samuel E.	McCannel Clinic, Minot
Sorenson, Alfred R.	Medical Arts Clinic, Minot
Sorenson, Roger	Medical Arts Clinic, Minot
Uthus, O. S.	21½ Second Ave. S.E., Minot
Veenbaas, Fred F.	Northwest Clinic, Minot
Wall, Willard W.	Northwest Clinic, Minot
Wallis, Marianne	Main Medical Bldg., Minot
Westervelt, A. E.	Bowdon
Wilson, Herbert J.	New Town

Fifth District

Berg, Milton O.	Valley City Clinic, Valley City
Christianson, Gunnar	Valley City Clinic, Valley City
Feist, Donald J.	Forman
Goven, John W.	Valley City Clinic, Valley City
Jensen, Clayton E.	Valley City Clinic, Valley City
Jensen, Warren R.	117 N.W. 3rd St., Valley City
Klein, C. J.	Valley City Clinic, Valley City
Macdonald, Alexander C.	130 Central Ave. So., Valley City
Macdonald, Neil A.	130 Central Ave. So., Valley City

Sixth District

Amos, James R.	Health Dept., Capitol Bldg., Bismarck
Anderson, Freedolph E.	Underwood
Arneson, Charles A.	405½ Broadway, Bismarck
Arnold, Helmut	Quain & Ramstad Clinic, Bismarck
Baumgartner, Carl J.	Quain & Ramstad Clinic, Bismarck
Berg, H. Milton	Quain & Ramstad Clinic, Bismarck
Berg, Roger M.	Quain & Ramstad Clinic, Bismarck
Bertheau, Herman J.	Linton
Boerth, Edwin H.	Workmen's Comp. Bureau, Capitol Bldg., Bismarck
Brink, Norvel O.	Quain & Ramstad Clinic, Bismarck
Buckingham, T. W.	405½ Broadway, Bismarck
Buckingham, W. M.	Capital City Clinic, Bismarck
Cleary, Joseph W.	Missouri Valley Clinic, Bismarck
Curiskis, Adolfs A.	Elgin
Dahl, Phillip O.	Missouri Valley Clinic, Bismarck
Daniolos, Demetrios P.	Quain & Ramstad Clinic, Bismarck
Diven, Wilbur L.	402½ Main, Bismarck
Dunnigan, Ralph J.	Capital City Clinic, Bismarck
Eriksen, Johan A.	Quain & Ramstad Clinic, Bismarck
Ewert, Arthur O.	Beulah
Fischer, Gerhard	Quain & Ramstad Clinic, Bismarck
Fischer, Hans H.	Quain & Ramstad Clinic, Bismarck
Fleck, Roland	Ashley
Fortman, Albert H., Jr.	Capital City Clinic, Bismarck
Frankel, John B.	Quain & Ramstad Clinic, Bismarck
Freise, Paul W.	Quain & Ramstad Clinic, Bismarck
Fricke, Roger W.	Quain & Ramstad Clinic, Bismarck
Gaebe, Otto C.	1215 No. Mandan St., Bismarck
Garrett, W. G.	Missouri Valley Clinic, Bismarck
Gibson, Thomas F.	Medical Arts Center, Mandan
Girard, Bernard A.	107 First Ave. N.W., Mandan
Goodman, Edward	Napoleon
Goughnour, Myron W.	Capital City Clinic, Bismarck
Gregware, P. Roy	Quain & Ramstad Clinic, Bismarck
Griebenow, Frederick	905 Ninth St., Bismarck
Gutowski, Franz	Wishek
Hamilton, Charles A.	Quain & Ramstad Clinic, Bismarck
Hanson, Harris D.	Quain & Ramstad Clinic, Bismarck
Heffron, M. M.	405½ Broadway, Bismarck
Henderson, Robert W.	Capital City Clinic, Bismarck
Hetzler, Arnold E.	322 W. Main, Mandan
Hilts, Joseph A.	New Salem
Icenogle, Grover D.	State Hospital, Jamestown
Jacobson, M. S.	Elgin
Johnson, Kenneth J.	Quain & Ramstad Clinic, Bismarck
Johnson, M. J. E.	Quain & Ramstad Clinic, Bismarck
Johnson, Paul L.	Quain & Ramstad Clinic, Bismarck
Kalnins, Arnold	Washburn
Kling, Robert R.	Quain & Ramstad Clinic, Bismarck
Klosterman, Paul F.	Capital City Clinic, Bismarck
Knudsen, Jerry M.	Missouri Valley Clinic, Bismarck
Kuplis, Harold	Turtle Lake
Larson, Leonard W.	Quain & Ramstad Clinic, Bismarck
Lindelow, Olaf V.	Missouri Valley Clinic, Bismarck
Lipp, George R.	502 W. Rosser, Bismarck
Lommen, M. A. K.	Capital City Clinic, Bismarck
Lorenzen, F. C.	Carson
Milligan, Shelagh M.	Medical Arts Center, Mandan
Montz, Charles R.	Quain & Ramstad Clinic, Bismarck
Moreland, J. Wilbur	903 Crescent Lane, Bismarck
Moses, James J.	Quain & Ramstad Clinic, Bismarck
Nuessle, Robert F.	Quain & Ramstad Clinic, Bismarck
Nugent, Milton E.	Quain & Ramstad Clinic, Bismarck
Orchard, Welland J.	Linton
Owens, Percy L.	Missouri Valley Clinic, Bismarck
Perrin, Edwin D.	Quain & Ramstad Clinic, Bismarck
Peters, Clifford H.	Quain & Ramstad Clinic, Bismarck
Peterson, Alice H.	State Health Dept., Capitol Bldg., Bismarck
Pierce, W. B.	911 Ave. C West, Bismarck
Pierson, R. Warren	Addis Ababa, Ethiopia
Pitcher, Wayne H.	Quain & Ramstad Clinic, Bismarck
Ralston, Lloyd S.	Quain & Ramstad Clinic, Bismarck
Ramos, Pablo	Quain & Ramstad Clinic, Bismarck
Samuelson, Albert F.	Children's Psychiatric Center, Bismarck
Sauer, John P.	Missouri Valley Clinic, Bismarck
Saxvik, Russell O.	Quain & Ramstad Clinic, Bismarck
Schoregge, Robert D.	Quain & Ramstad Clinic, Bismarck
Smeenk, H. Pieter	Quain & Ramstad Clinic, Bismarck
Smith, Clyde L.	Missouri Valley Clinic, Bismarck
Spielman, George H.	1715 Ave. E East, Bismarck
Stucke, Agnes D.	Garrison
Tarnasky, Ralph E.	St. Alexius Hospital, Bismarck
Thakor, S. J.	Cowan Bldg., Bismarck
Tolstedt, Grandon E.	Quain & Ramstad Clinic, Bismarck
Tudor, Robert B.	Quain & Ramstad Clinic, Bismarck
Vinje, Edmund G.	Hazen Clinic, Hazen
Vinje, Ralph	405½ Broadway, Bismarck
Vonnegut, Felix F.	Linton
Waldschmidt, William D.	Quain & Ramstad Clinic, Bismarck
Zukowsky, Anthony	Steele

Seventh District

Beall, John A.	Professional Bldg., Jamestown
Bishop, James R. E.	Professional Bldg., Jamestown
Bolliger, Eugene F.	Ellendale
Carbone, Hubert A.	State Hospital, Jamestown
Clement, Duane	Professional Bldg., Jamestown
Craychee, Walter A.	Oakes
Cukurs, Paul	State Hospital, Jamestown
Curtis, Philip B.	Medical Arts Clinic, Jamestown
Elsworth, John N.	DePuy-Sorkness Clinic, Jamestown
Engberg, Roger D.	DePuy-Sorkness Clinic, Jamestown
Fergusson, Victor D.	Edgeley
Gronewald, Tula W.	State Hospital, Jamestown
Hieb, Edwin O.	DePuy-Sorkness Clinic, Jamestown
Hogan, Clifford W.	DePuy-Sorkness Clinic, Jamestown
Jansonius, J. W.	Medical Arts Clinic, Jamestown
Jestadt, John J.	Boise, Idaho
Klassen, Rudolph A.	LaMoure Clinic, LaMoure
Larson, Ernest J.	DePuy-Sorkness Clinic, Jamestown
Lucy, Robert E.	DePuy-Sorkness Clinic, Jamestown
Melzer, Simon W.	Woodworth
Martin, Clarence S.	Medina
Meunier, H. J.	Oakes
Miles, James V., Jr.	119 Second Ave. S.E., Jamestown
Nierling, Richard D.	DePuy-Sorkness Clinic, Jamestown
Nolan, Robert B.	119 Second Ave. S.E., Jamestown
Oster, Ellis	U. of Utah, Salt Lake City
Pederson, Thomas E.	DePuy-Sorkness Clinic, Jamestown
Rubbert, Duane	LaMoure Clinic, LaMoure
Sakai, Masahiro	DePuy-Sorkness Clinic, Jamestown
Sorkness, Joseph	DePuy-Sorkness Clinic, Jamestown
Swafford, Gerald R.	DePuy-Sorkness Clinic, Jamestown
Swenson, John A.	DePuy-Sorkness Clinic, Jamestown
Turner, Neville W.	885 Longview Rd., Hillsborough, Cal.
Van der Linde, John M.	Medical Arts Clinic, Jamestown
Van Houten, Richard W.	Oakes
Woodward, Robert S.	DePuy-Sorkness Clinic, Jamestown

Eighth District

Borrud, Chester C.	Harmon Park Clinic, Williston
Craven, John P.	Craven-Hagan Clinic, Williston
Craven, Joseph D.	Craven-Hagan Clinic, Williston
Ellis, Gordon E.	Harmon Park Clinic, Williston
Fennell, William L.	Crosby Clinic, Crosby
Hagan, Edward J.	Craven-Hagan Clinic, Williston
Johnson, Alan K.	Williston Clinic, Williston
Jun, Chang Sik	Crosby Clinic, Crosby
Lund, Carroll M	Williston Clinic, Williston
McPhail, Clayton O.	Crosby Clinic, Crosby
Oliver, Donald C.	Watford City
Olson, M. Jerome	Williston Clinic, Williston
Olson, Robert J.	1302 Thirteenth Ave. W., Williston
Skjei, Donald E.	Williston Clinic, Williston
Strinden, Dean R.	Harmon Park Clinic, Williston
Wiederanders, R. E.	Harmon Park Clinic, Williston
Wright, Willard A.	Williston Clinic, Williston

Ninth District

Ahlness, Paul	Bowman
Bush, Clarence A.	Beach
Carter, Robert G.	Hettinger
Dukart, Ralph J.	Dickinson Clinic, Dickinson
Foster, Keith G.	Rodgers-Gumper Clinic, Dickinson
Gilliland, Robert F.	Dickinson Clinic, Dickinson
Gilsdorf, Amos R.	Dickinson Clinic, Dickinson
Guloien, Hans E.	Dickinson Clinic, Dickinson
Gumper, Arnold J.	Rodgers-Gumper Clinic, Dickinson
Hanewald, Walter C	Rodgers-Gumper Clinic, Dickinson
Hankins, Robert E.	Mott
Hill, S. W.	Regent
Hlavinka, Delbert J.	Mott
Larsen, Harlan C.	Rodgers-Gumper Clinic, Dickinson
Maercklein, Otto C.	Mott
Nicely, Donald A.	Rodgers-Gumper Clinic, Dickinson
Ordahl, Norman B.	Rodgers-Gumper Clinic, Dickinson
Raasch, Richard F.	30 W. 8th St., Dickinson
Reichert, Donald J.	24 W. Villard, Dickinson
Reichert, H. Lawrence	24 W. Villard, Dickinson
Retzer, Paul G.	Hettinger
Sawchuk, Andrew C.	Dickinson Clinic, Dickinson
Schumacher, William A.	12102 Silver Fox Rd., Los Alamitos, California
Skwarok, Walter S.	Hebron
Slominski, Henry	Richardton
Smith, Oscar M.	P.O. Box 1188, Dickinson
Spear, Albert E.	610 First Ave. W., Dickinson
Thom, Robert C.	Bowman

Tenth District

Breen, Donald J.	Hillsboro
Dekker, Omar D.	Finley
Kloster, Ronald M.	Mayville
LaFleur, Harold A.	Mayville
Little, James M.	Mayville
Little, Roy C.	Mayville
McLean, Robert W.	Hillsboro
Mergens, Daniel N.	1634 No. 80th St., Omaha, Nebraska
Oja, Karl F.	Hatton
Wakefield, Kenneth M.	Cooperstown

Transactions of the North Dakota State Medical Association

TRANSACTIONS OF THE EIGHTEENTH ANNUAL MEETING OF THE WOMAN'S AUXILIARY TO THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

Minot, North Dakota, May 3 and 4, 1964

The opening session of the Eighteenth Annual Meeting of the Woman's Auxiliary to the North Dakota State Medical Association was held in the Skyline Room of the Clarence Parker Hotel, Minot, at 9:30 A.M., Monday, May 4, 1964, with Mrs. R. E. Hankins, state president, presiding.

Mrs. Hankins introduced our honored guest, Mrs. E. R. W. Fox, Coeur d'Alene, Idaho, director and reports chairman of the Woman's Auxiliary to the American Medical Association.

The pledge of loyalty was led by Mrs. Clyde Smith, state president-elect.

The invocation was given by Mrs. Lee Christoferson, first vice-president.

Mrs. Samuel Shea, Minot, extended a welcome to the convention. The response was given by Mrs. H. L. Reichert, Dickinson.

Dr. Amos Gilsdorf, president of the North Dakota Medical Association, brought greetings from the medical association. He said that the interest shown by the ladies of the auxiliary is pleasing to the doctors. He invited members to the scientific meeting and exhibits and to any activity of the association. "The publication of the auxiliary, News, Views and Cues, is most important, for it rounds out the medical fraternity, it unifies and informs it." He reads every issue and feels that it should definitely be continued. Dr. Gilsdorf noted that the birthplace of our national auxiliary guest, Mrs. Fox, in Chippewa Falls, Wisconsin, was near his place of birth. He commended Mrs. Hankins for the good and exemplary work she has accomplished as president. He noted the accolade given to the national auxiliary president, Mrs. C. Rodney Stoltz of Watertown, South Dakota, at the House of Delegates meeting in Portland, Oregon. "She is doing an excellent job." Because 1964-65 is a year of greater political activity, he suggests that every member should become acquainted with legislative proceedings and know the difference between the Kerr-Mills and King-Anderson type of bills. Dr. Gilsdorf called attention to the problems created by programs of socialized medicine in the countries of India, Belgium, Italy, and Canada. "We should show concern and appreciate what we have in a free country." He told of the S.A.M.A. group, which in 1962 wouldn't accept government subsidy, reversing its decision in 1963. This refers to HR-12 (88-129 Public Law). He feels that, for the interpretation of this reversal, we try to look through the eyes of the student. Mrs. Hankins thanked Dr. Gilsdorf for his message.

Mrs. R. W. McLean read the resolution directed from the House of Delegates to the North Dakota Medical Association to Mrs. Florita Hankins and her successor.

RESOLUTION

WHEREAS, the ladies of the Woman's Auxiliary to the North Dakota State Medical Association, through diligent and continuous effort over the past thirteen years of their existence, have raised the sum of over $27,000 for the Medical Auxiliary Student Loan Fund of the medical school of the University of North Dakota and in the past year have accumulated over $2,000 and, further, have donated over $300 to the American Medical Association Education Fund, and

WHEREAS, these funds have enabled many medical students to complete their medical education, and

WHEREAS, the Woman's Auxiliary, during the past year, has distributed 395 information kits covering medical care plans for the aged to the high school debate teams over the state, which project was most commendable, and

WHEREAS, the auxiliary units throughout the state have participated in many commendable projects which reflect credit to their organization and to the medical profession,

NOW, THEREFORE, BE IT RESOLVED that the House of Delegates of the North Dakota State Medical Association convey to the Woman's Auxiliary our appreciation and thanks for their excellent work, and

BE IT FURTHER RESOLVED that a copy of this resolution be directed to Mrs. Florita Hankins and her successor.

Mrs. V. J. Fischer, Minot, was pleased to report no death of an auxiliary member in the past year.

The following members answered a secretary's roll call:

State officers: Mrs. R. E. Hankins, president; Mrs. Clyde Smith, president-elect; Mrs. Lee Christoferson, first vice-president; Mrs. M. A. K. Lommen, recording secretary; and Mrs. Roger Berg, treasurer.

Committee chairmen: Mrs. J. W. Jansonius, nominating; Mrs. R. D. Schoregge, parliamentarian; Mrs. D. J. Halliday, historian; Mrs. D. G. McIntyre, AMA-ERF; Mrs. Sushen Thakor, health careers; Mrs. Paul Ahlness, community service; Mrs. Walter Hanewald, publicity; Mrs. R. F. Raasch, legislation; Mrs. Calvin Fercho, international health activities; Mrs. J. D. Craven, substituting for Mrs. Alan Johnson, safety; Mrs. J. H. Mahoney, managing editor of News, Views and Cues; Mrs. Jens Sahl, district news editor, News, Views and Cues; Mrs. Jon V. Eylands, business and circulation manager, News, Views and Cues; Mrs. Henry Kermott, finance; Mrs. R. D. Nierling, medical auxiliary loan fund; and Mrs. J. Terlecki, rural health.

District presidents: Mrs. Stuart J. Cook, Second District; Mrs. Carl London, Fourth District; and Mrs. J. D. Craven representing Mrs. Alan Johnson, Eighth District.

Delegates: Mrs. George Ivers, First District; Mrs. John V. Sessums, Jr., First District; Mrs. John A. Sandmeyer, Third District; Mrs. V. J. Fischer, Fourth District; Mrs. Gale Richardson, Fourth District; Mrs. E. O. Hieb, Seventh District; Mrs. John N. Elsworth, Seventh District; Mrs. Joseph Cleary, Sixth District; Mrs. W. D. Waldschmidt, Sixth District; Mrs. J. D. Craven, Eighth District; Mrs. L. Reichert, Ninth District; and Mrs. R. W. McLean, Tenth District.

Councillors: Mrs. Calvin Fercho, First District; Mrs. Paul Breslich, Fourth District; Mrs. Richard Raasch, Ninth District; and Mrs. R. W. McLean, Tenth District.

A quorum was present.

Mrs. Clyde Smith moved that the minutes of the 1963 convention be approved as printed in the Journal-Lancet of January and February 1964. Mrs. R. D. Schoregge seconded the motion. The motion carried.

The convention rules of order were read by the parliamentarian, Mrs. R. D. Schoregge. Mrs. R. D. Nierling moved that these be adopted, and Mrs. Sushen Thakor seconded the motion. The motion carried.

Mrs. R. E. Hankins appointed Mrs. L. H. Reichert as page and doorkeeper.

Mrs. R. E. Hankins presented the president's report. She thanked all the members of the board and the members and officers of the 9 districts for their hospitality and help during the year. She expressed a special thanks to the Fourth District Auxiliary for the flowers in her room, to the Fourth District Medical Auxiliary for her corsage, to her Southwest District (Ninth) for their steady support, to the Fourth District for their planning and work on the convention, and to her family for their help and cooperation during her year as president.

Mrs. Clyde Smith reported a membership of 338, an increase of 11 over last year. The medical association has 449 members, and 338 is about 75% of their number.

Mrs. R. E. Hankins reported that Dr. Annis, president of the AMA, feels that the national auxiliary must improve in communications with the individual members and assure each member receipt of the bulletin. In June at the national convention the membership will be asked to raise its dues $1. In this way each member will be assured receipt of the bulletin. "This raise in dues will find maximum good," said Dr. Annis.

Mrs. R. W. McLean moved that the convention instruct the delegates from North Dakota to the national convention to approve the raise in dues. Mrs. Carl London seconded the motion. The motion carried.

Reports of chairmen of standing committees:

Mrs. Paul Ahlness, homemaker's service: community service report: "A woman who is employed to help a family help itself." Those who can pay for services are expected to. These services are under voluntary and public auspices. Social workers, nurses, and home economists comprise the background of many workers. President Johnson's approach on poverty will accelerate this service or similar aid.

Mrs. R. M. Berg, treasurer, reported a balance of $1,923.86 as of April 30, 1964.

Mrs. Henry Kermott, chairman of the Finance Committee, presented the proposed budget of $1,109 for 1964-65. Mrs. E. O. Hieb moved that this budget be accepted. Mrs. D. G. McIntyre seconded the motion. The motion carried.

Mrs. D. J. Halliday, historian, requested a new book for the auxiliary.

Mrs. D. G. McIntyre, AMA-ERF chairman, asked that the district treasurers send the AMA-ERF checks directly to the state AMA-ERF chairman. The state chairman has "in memoriam" cards, "in appreciation" cards, playing cards, stationery, charms (a minimum order of 12), and Christmas cards. These Christmas cards will return 40% to the state chairman, and if these cards are ordered during the summer there is an additional individual discount available. She reported that total contributions to national AMA-ERF were $499.60; per capita for the state (340 members) is $1.47. The top 3 districts receive Certificates of Achievement: Southwestern (Ninth District) for the largest contribution. per capita, $4.17; First District (Fargo) for the largest contribution, $125; and Tenth District (Traill Steele) for the largest increase over last year.

Mrs. Lee Christoferson, program, had no report.

Mrs. J. F. Houghton, by-laws, had no report. The bylaws remain without revision.

Mrs. E. G. Vinje, aging and rehabilitation, had no report.

Mrs. George H. Holt, bulletin, had no report.

Mrs. Sushen Thakor, health careers, reported that 6 active clubs are organized and operating with a membership of more than 200 young people. Her communication with other state careers chairmen show that, although our numbers are small, that our programs compare favorably with those of other states. In many instances our programs are highly superior.

Mrs. W. Hanewald, publicity, reported that auxiliary members are actively engaged in a wide variety of community activities. Publicity reports around the state have been good. She supplied forms to be filled in for local newspapers on the state convention.

Mrs. J. Terlecki, rural health, reported that the oral polio immunizations were the outstanding activity of auxiliary members in 1963 and 1964.

Mrs. R. F. Raasch, legislation, reported on the use in the districts of the Operation Hometown packets. The debate kits, "Social Security and Medical Care," were developed by the AMA and distributed to the high schools which had debate teams. Since last summer, 696 kits have been distributed. The auxiliary is responsible for placing of 395 of this number.

Mrs. Calvin Fercho, international health activities, reports that 18 boxes of sample drugs have been shipped to World Medical Relief, Inc., from various locations in North Dakota. Two barrels of drugs have been shipped to Ahuas, Honduras. Two groups have sent boxes of bandages prepared from old sheets to World Medical Relief, Inc. Many doctors and auxiliary members plan to bring drug samples, books, and bandages to the state convention in Minot to be packed and shipped from there. Mrs. R. D. Schoregge, Mrs. Lee Christoferson, and Mrs. C. Fercho met Tuesday, May 5, to pack the collection from the convention. Nineteen cartons (370 lb.) were collected and shipped from the Minot convention to World Medical Relief, Inc., in Detroit.

Mrs. J. H. Mahoney, managing editor of News, Views and Cues, said that 4 issues have been published this year. A postconvention issue will come out this summer. Blue Shield has been most generous in taking care of postage.

Mrs. Jens Sahl, district news editor of News, Views and Cues, reported that the outline of 10 broad sections, meetings and auxiliary projects, membership, community service, progeny, illnesses, in memoriam, travelogue, and miscellany was followed again this year.

Mrs. Jon V. Eylands, circulation and business manager of News, Views and Cues, said that before the April issue 1,300 copies had been sent out. This included the October, December, and February issues. For these issues the treasurer received a total bill of $178.63.

To keep the finances of the auxiliary within a proper relation to receipts and disbursements, the Finance Committee presented its budget figure for News, Views and Cues at $250. Mrs. Gale Richardson moved acceptance of this figure. Mrs. Sushen Thakor seconded the motion. The motion carried.

Mrs. J. D. Craven, representing Mrs. Alan Johnson, safety chairman, said reprints on the "Use of Seat Belts" and "Where Johnny Gets His Gun" were sent to each district chairman. Also, a basic sheet of safety, AMA material, "Guns don't Kill People but People with Guns Do," was sent to each district. She said, "We must continue to work and develop our safety programs."

Mrs. J. W. Jansonius read a resolution adopted by the Stutsman County Medical Auxiliary, April 17, 1964:

RESOLUTION

WHEREAS, hunting is a widespread and popular sport in the State of North Dakota indulged in by young and old alike, and

WHEREAS, there are a number of accidents in hunting, most of which could be avoided through proper safety practices and knowledge of firearms, and

WHEREAS, the North Dakota Wildlife Federation plans to introduce legislation to educate our youth in the safe and proper use of firearms through a program of planned instruction to be completed prior to the issuance of hunting permits, and

WHEREAS, we believe that such instruction could materially reduce the number of hunting accidents, and

WHEREAS, this program would complement the Gun Safety Program of the Woman's Auxiliary of the American Medical Association,

NOW, THEREFORE, BE IT RESOLVED that the membership of the Stutsman County Medical Auxiliary supports the proposed legislation of the North Dakota Wildlife Federation for instruction in the proper use of firearms as a prerequisite to the issuance of hunting permits.

This resolution was adopted by vote of the membership at the regular meeting of the Stutsman County Medical Auxiliary, April 17, 1964.

Mrs. John A. Swenson, President

The Finance Committee recommended that $1,000 be deposited in a savings account. Mrs. Carl London moved that the treasurer deposit $1,000 in a savings account. Mrs. Robert Ulmer seconded the motion. The motion carried.

Mrs. Clyde Smith introduced Mrs. Joseph Cleary and listed the names of Mrs. William Buckingham, Mrs. Phillip O. Dahl, and Mrs. Robert F. Nuessle as members of the Reading Committee.

Mrs. J. W. Jansonius presented the report of the Nominating Committee: president, Mrs. Clyde Smith; president-elect, Mrs. M. A. K. Lommen; first vice-president, Mrs. O. S. Uthus; second vice-president, Mrs. E. O. Hieb; recording secretary, Mrs. Robert Ulmer; and treasurer, Mrs. R. M. Berg. Mrs. R. D. Nierling moved acceptance of the Nominations Report. Mrs. M. H. Poindexter seconded the motion. The motion carried.

Mrs. R. E. Hankins introduced Mr. Larry Anderson, guest speaker, health mobilization program representative, state department of health, Bismarck. His topic was "Medical Self-Help in North Dakota."

The Public Health Service, health mobilization branch, was designated to develop a medical self-help training course. This was done in cooperation with the American Medical Association, the Office of Civil Defense, and the Department of Education and Training. The purpose of this course is to train the general public to take care of themselves in a disaster situation, as there would be a serious lack of physicians. The goal is to train one member of each family in the country in MSH. The course was developed so that anyone could teach it, provided he could read and follow simple directions.

Dr. R. E. Mahowald, chairman of the Emergency Medical Service Committee of the state medical association, taught the initial course in MSH in North Dakota. Many physicians throughout the state took part in or taught many of the beginning courses. Special mention should be given Dr. and Mrs. R. E. Hankins of Mott. Mrs. Hankins assumed the responsibility of MSH coordinator for Hettinger County, and through their efforts 13 classes have been conducted with 287 students trained in MSH, making Hettinger County one of the more active ones in the state.

The state health department, state medical association, state civil defense, and the state department of education are the 4 cooperating agencies for MSH in the state, with the state health department, health mobilization program being responsible for the administration, promotion, and coordination of the MSH program.

This is a voluntary program at the community level throughout the state and nation. The Junior Chamber of Commerce has adopted the MSH program as a state program. Industry and hospitals have given the course as an in-service training program to their employees. Homemakers clubs in this state have been active in training their members. Fifty-seven schools have kits and are now either teaching the course to high school students or are making plans to teach it next year. In North Dakota 194 classes have been trained in MSH with 4,061 students trained. It is estimated that 163,000 people in North Dakota should be trained. The MSH plan is to contact at least one physician in each county to act as the medical sponsor in the county. Many physicians taught all or parts of the course to a group which in turn were urged to teach a class. The physicians are available to answer any medical questions which might arise that lay instructors may not be able to answer. A MSH coordinator has been recruited in each county who is responsible to help set up classes, line up instructors, brief the instructors on how to use the kit, keep expendable supplies on hand for classes, keep track of the kit, promote the course through newspaper articles and news media, and report to the Health Mobilization Program the number of students trained each month.

The course consists of sixteen hours of instruction in the following subjects: radioactive fallout and shelter, healthful living in emergencies, artificial respiration, bleeding and bandaging, fractures and splinting, transportation of the injured, infant and child care, and emergency childbirth.

The kit contains the necessary materials and equipment of the course. Materials are an instructor's guide, a course introduction, 11 lesson booklets, filmstrips, projector and screen, and examination booklets and grading templates. Expendable materials are packed separately. They consist of a reference book for each student, answer sheets for the examination, diplomas, and an instructor's report form.

The auxiliary members were urged to pass the information to other groups to make them aware of the course and what it teaches. There is a need for instructors! Can you spare the time? If not, you might know of some very willing and able instructors in your community.

The meeting recessed.

The second business meeting convened at 2 P.M. in the Skyline Room of the Clarence Parker Hotel, with Mrs. R. E. Hankins, state president, presiding.

The reports from the district presidents were read.

Dr. Robert Ulmer reported on COMPACT-AMPAC (state and national committees for political action). These committees were organized because corporations cannot take part in political action. The money is raised by selling memberships. The types of membership available are: COMPACT-AMPAC: (a) active membership, $20 to $108, (b) sustaining membership, $109 ($99 to AMPAC), (c) student membership, $5, and (d) wife membership, $20. The way in which the committee decides whom it will support is by giving assistance where it will do most good. It is the duty of the doctors and families to influence people to vote right. There is a need for salesmen in each district. He brought the Political Education Series pamphlets supplied from AMPAC.

Mrs. R. E. Hankins introduced guest speaker, Dr. Myron W. Burger, director of evaluation, Mental Health Service, State Department of Health, Bismarck. He told the auxiliary members of "The Present and Future Plans and Needs of Mental Health Projects in North Dakota."

"How much of a problem is mental health in North Dakota?" "The answer is not known." Most of the work is in the planning and survey stage at this time. "How many people are coming for service to existing agencies?" "How many children are in need of diagnostic service?" "How can the needs of the people be met?" He said, "Each state should have a survey to determine services needed on the local level." The plan for North Dakota was outlined last July. The goal was "comprehensive care for mentally ill in North Dakota." Each community must coordinate its services and establish referral policies between agencies. The state is divided into 8 regions, centered around the 8 largest cities in the state. At present the Fargo area is the only one adequate in finances or patient group to furnish facilities. The survey has been completed in the Fargo and Grand Forks areas, with the work going on in Dickinson, Minot, Williston, Bismarck, Jamestown, and Devils Lake. They hope to complete these regional surveys by July 1. From these surveys, questionnaires, interviews, summaries, services, and work groups a general outline for the next fifteen years will evolve for ways in which communities will develop facilities.

Unfinished business. Mrs. R. D. Nierling, medical auxiliary loan fund chairman, reported that 28 loans were made in 1963. The contributions for this year are $2,352, which brings the total amount in the fund to $28,833.39 in its fourteenth year. Please remember to send district loan fund checks to the medical auxiliary loan fund chairman, Mrs. Lee Christoferson.

Mrs. Clyde Smith moved that a letter of thanks be sent to Mr. Larry Anderson and to Dr. Myron Burger for addressing the convention. Mrs. Joseph Cleary seconded the motion. The motion carried.

New business. Election of officers: Mrs. J. W. Jansonius, chairman of the Nominating Committee, read the following slate of officers: president, Mrs. Clyde Smith; president-elect, Mrs. M. A. K. Lommen; first vice-president, Mrs. O. S. Uthus; second vice-president, Mrs. E. O. Hieb; recording secretary, Mrs. Robert Ulmer; and treasurer, Mrs. Roger Berg. Mrs. R. E. Hankins asked for nominations from the floor. Mrs. Paul Ahlness moved that a unanimous ballot be cast for the nominees as given by the Nominating Committee. Mrs. Gale Richardson seconded the motion. The motion carried.

Mrs. R. D. Schoregge moved that the meeting adjourn. Mrs. Henry Kermott seconded the motion. The motion carried. The meeting was adjourned.

Mary E. Lommen, Recording Secretary

Progress Report 1963-1964

The 350 members of the Women's Auxiliary to the North Dakota State Medical Association may be small in number, but their impact is tremendous! Each district has its own favorite community project. Our medical school district shelters the North Dakota Student American Medical Association group with personal contacts, and our state auxiliary gives them $100 annually for their delegate to the national meeting. One district helps support a diabetic children's camp, and another has a visiting committee which provides cakes for senior citizens. The district with the state TB sanatorium and the school for the mentally retarded invited the medical superintendent to speak. The district with the state hospital sponsors an annual birthday party there and sponsors a citywide senior citizens party each year. It gave several baskets to the needy at Christmas and sponsored a mother-daughter tea at the crippled children's school (all done with only 26 members).

Since North Dakota is essentially a rural state, all of our projects filter throughout the communities. The doctor's wife is expected to organize or cooperate on immunization clinics and the many fund raising drives. Mental health, too, acquires cooperation through these other projects, as well as the use of "A Cry for Help" at district meetings. Several communities showed "The One Who Heals" after it was previewed at the fall board meeting; the clergymen were especially appreciative.

The Safety Committee is attempting to sponsor home gun safety courses. One of our districts adopted a resolution encouraging the North Dakota Wildlife Federation in its attempt at legislation for mandatory instruction before issuance of gun and hunting permits. Disaster Preparedness is also beginning to show some activity. One district heard the medical association's committee chairman discuss this project. "Medical Self-Help" was the topic of a speaker from the health department at our convention, and several members have given these classes in their communities.

We have several statewide projects of which to be proud.

The International Health Activities Committee gathered drugs and supplies for World Medical Relief, Inc. During the year over 20 cartons were sent, and 20 more, totaling 370 lb., were collected and sent during our annual convention in May. Boxes of bandages from old sheets were sent by district auxiliary and from an auxiliary health careers club. The "S.S. Hope" was featured at a district meeting and at the medical association's state convention. One of our members and her family left for Ethiopia as medical missionaries, and one district sent several barrels of drugs directly to Honduras.

The Health Careers Committee can boast of the sixth annual State Rally for Health Careers Clubs. There are 8 community clubs under district sponsorship and many hospital volunteer programs under direct guidance of individual auxiliary members. These groups, high school guidance counsellors, and similar groups throughout the state are invited to the rallies. Ten communities were represented at this year's meeting. The North Dakota Council on Health Careers helps sponsor these rallies, and the chairman and vice-chairman of the council are auxiliary members. One of our health careers clubs received its community's annual La Sertoma Award.

The Legislation Committee did a wonderful job distributing the debate kits. Over half of the kits distributed in the state were directly attributed to auxiliary members' contacts with the schools and their cooperation with the state medical association. Most of the districts heard the local debaters. Many members are also working on Operation Hometown teams. One district mailed out 1,450 letters. Auxiliary members are also active in the party of their choice on local and statewide levels in many varied capacities. During sessions of the state legislature our capital city district has its extra duties to perform.

Our special claim to fame, however, is the $2,358 that was added this year to the medical auxiliary Student Loan Fund at the University of North Dakota Medical School. This loan fund is in its fourteenth year, and the net worth is well over $28,000—an average of $800 per member, with this year's contribution over $7 per capita. Besides this we donated about $400 to AMA-ERF.

Although North Dakota is comparatively small, it has accomplished much this year. We are extremely proud of our membership and know it is the individual member who activates the district, which in turn enthuses state projects, which reflects the information sent out by national projects. The prospect of having the bulletin reaching individual members will greatly enrich the prospects of interesting projects tailored to individual interests and community needs. We are happy to have this opportunity for direct communication so that we will be better able to serve.

Mrs. R. E. Hankins, President

Financial Statement

May 1, 1963 to April 30, 1964

Income:	
May 1, 1963, balance on hand	$2,005.42
Dues:	
332 national, 331 state	1,351.00
1 North Dakota honorary (no dues)	
1 national honorary (no dues)	
Received for past president's pin	9.76
Cancelled check	23.00
Student loan contributions	2,318.00
AMA-ERF	116.00
	$5,823.18
Disbursements:	
Mrs. E. T. Keller—AMA-ERF	25.00
Mrs. J. W. Jansonius: past president	
Expense account 1962-1963	125.00
Mrs. R. E. Hankins: president	
National convention	250.00
Expense account 1963-1964	125.00
Chicago convention 1963	120.00
Mrs. C. Smith: president-elect	
Chicago convention 1963	120.00

Miscellaneous fund:	
Mrs. Longmire (nominating expense)	15.00
Atlantic Playing Cards and Match Co.	50.66
Mrs. Van der Linde (nominating expense)	15.50
News, Views and Cues	236.16
Overpayment of dues	26.00
National treasurer	332.00
AMA-ERF—Mrs. McIntyre ($25.00 from state)	141.00
Student loan—Mrs. Nierling	2,318.00
	$3,899.32
April 30, 1964, balance on hand	$1,923.86

Mrs. Roger M. Berg, Treasurer

Membership Report

Membership chairmen of all states, large and small, are faced with the same dilemma: larger membership in state medical associations and a shrinking percentage of membership in medical auxiliaries. According to opinions expressed at the Chicago conference last fall, we must somehow try to bring back the attitude of an earlier day when every doctor's wife deemed it a privilege and honor to belong to the Woman's Auxiliary to the American Medical Association.

Comparatively speaking, North Dakota fares well with national membership figures. Our auxiliary has 332 members, and the North Dakota State Medical Association has 449. This means we have nearly a healthy 75% of doctors' wives in this state included in our membership.

We have 9 organized auxiliaries and one district, with 6 members-at-large.

There is no magic formula to gain new members or hold old members; but friendly personal contact, interesting programs, worthwhile projects, and a realization of the vital necessity to aid our doctor-husbands in their struggle to preserve the American way of medical practice should be helpful.

Zoe M. Smith, Chairman

Woman's Auxiliary to the Student AMA
University of North Dakota

1963-64 Program

September	17	Welcome get acquainted tea
October	1	Tour of the medical building—Dean Harwood
October	15	"Europe on a Shoestring," slides and question-and-answer period
November	5	Plans for tasting tea
November	19	Made turkey tray favors for memorial home
December	10	NSP demonstration on Christmas baking and recipes
January	21	Nordby upholsterers—hints on upholstering and interior decorating
February	18	Legal aspects of being a wife—lawyer spoke at Dr. Dailey's home
March	3	First aid—Dr. Vandergon
March	17	Experiment in international living—Mike Howell, UND-SAMA president
April	7	Cheri Paul Charm School demonstration
April	21	Fine arts—tour of art exhibit at the student union
May	5	Spring banquet at the Bronze Boot, installation of officers

Social Events

November	22	Dance for all students and faculty of the medical school and wives or dates
February	22	Semiformal dinner dance for all medical and graduate students and wives or dates, courtesy of Coke machine in medical school
May	3	Luau and softball game with law students. Wives and husbands alternate in playing innings.
May	29	Semiformal dinner dance for all those associated with the medical school

Fund Raising

1. Tasting tea and bazaar
2. Sale of Christmas cards and paper and personal note cards
3. Items selected from a gift catalog with percentage of profits for chapter
4. Profit from dinner dance

Service Project

Valley Memorial Home

1. We try to have 2 to 4 members visit each weekend.
   a. to write letters and read
   b. to take residents for rides or shopping
   c. to take children to visit nursing ward
   d. to give permanents and wash and set hair
   e. to chat and work puzzles
2. We bought them a phonograph for their recreation room that can be used with the public address system; music is piped to each room.
3. Favors were made.
   a. Gumdrop turkey tray favors at Thanksgiving for each of 170 residents
   b. Heart-shaped cookies, frosted pink for Valentine's Day
   c. Individual decorated green bottles holding a single carnation for each resident on May Day

Mrs. T. H. Harwood
Liaison to SAMA

Historian's Report

The seventeenth annual meeting of the Woman's Auxiliary to the North Dakota Medical Association was held in Dickinson. The opening session was presided over by Mrs. J. W. Jansonius, state president, in the Hospitality Room of the Liberty National Bank.

Official minutes are recorded in the January and February 1964 issues of The Journal-Lancet.

The fall board meeting was held at 1 p.m., October 26, 1963, in the Medical Conference Room of the Bismarck Hospital with Mrs. Robert E. Hankins, state president, presiding. Twenty-two members were present. Mrs. Hankins and Mrs. Clyde Smith reported on the Chicago fall conference. Mrs. Smith's written report is in the October 1963 issue of News, Views and Cues.

Mrs. Hankins reported on the national convention, held in Atlantic City in June, in the October issue of News, Views and Cues. Mrs. George Holt of Jamestown was a delegate and Mrs. Harold Evans of Grand Forks, alternate.

Honored guest speakers at the state convention were Mrs. Richard Sutter, St. Louis, Missouri, regional vice-president of the Woman's Auxiliary to the American Medical Association, and Dr. E. J. Larson, president of the North Dakota State Medical Association.

Mrs. R. W. McLean's mother, Mrs. A. B. O'Connor, was honored in May as North Dakota Mother of the Year. Ann accompanied her mother to New York for the ceremonies.

The medical auxiliary loan fund received $2,369 from the Woman's Auxiliary. Mrs. Gale Richardson was chairman of this fund.

The state health careers, under the leadership of Mrs. Sushen Thakor, held a successful annual rally in Bismarck, September 21, with 171 girls and boys present.

Clara M. Halliday, Historian

Program of the Woman's Auxiliary

SUNDAY, MAY 5, 1963

12:00 Noon. Registration, Dakota Room, Ray Hotel, Dickinson, Mrs. R. W. Rodgers, chairman

1.00 P.M. Nominating Committee meeting, Liberty National Bank Hospitality Room. Mrs. Thomas Longmire, chairman

1:45 P.M. Finance Committee meeting, Liberty National Bank Hospitality Room. Mrs. Roger Berg, chairman

2.30 P.M. Student Loan Fund Committee meeting. Liberty National Bank Hospitality Room. Mrs. G. R. Richardson, chairman

4:00 P.M. Preconvention board meeting, Liberty National Bank Hospitality Room. Mrs. J. W. Jansonius, president, presiding

6:00 P.M. Mixer and buffet supper, Elks Club

MONDAY, MAY 6, 1963

8.30 A.M. Past-presidents' breakfast, Ray Hotel. Mrs. R. W. Rodgers, chairman

9:00 A.M. Registration, Dakota Room, Ray Hotel

9 30 A.M. Opening session, Liberty National Bank Hospitality Room. Mrs. J. W. Jansonius, state president, presiding
Pledge of loyalty. led by Mrs. Robert Hankins, president-elect
Invocation: Mrs. Clyde Smith, first vice-president
Welcome: Mrs. Harlan Larsen, Dickinson
Response: Mrs. J. M. Van der Linde, Jamestown
Greetings: Dr. E. J. Larson, president, North Dakota State Medical Association
Memorial service. Mrs. Robert Hankins, Mott, and Mrs. Robert Gilliland, Dickinson
Reports of state officers and chairmen and district presidents

12:30 P.M. Luncheon, Esquire Steak House. Mrs. Robert Hankins, president-elect, presiding
Dr. Amos Gilsdorf, president-elect, North Dakota State Medical Association, guest speaker

2.30 P.M. Second business session, Liberty National Bank Hospitality Room. Mrs. J. W. Jansonius, state president, presiding
Unfinished business, new business, election of officers

5:30 P.M. Social hour, Dickinson Country Club

6:30 P.M. Chuck wagon supper, Dickinson Country Club. Mrs. W. C. Hanewald. Ninth District president, presiding. Honored guest and speaker: Mrs. Richard A. Sutter, St. Louis, Missouri, regional vice-president of the Woman's Auxiliary to the American Medical Association.
Installation of officers
Postconvention board meeting following

CONVENTION CHAIRMEN

Co-chairmen: Mrs Harlan Larsen, Mrs. Grace Dukart
Registration and tickets: Mrs. R. W Rodgers, chairman, Mrs. A. E. Spear
Transportation: Mrs. Keith Foster, Mrs. Ralph Dukart
Finance: Mrs. Henry Slominski
Entertainment: Mrs. Robert Gilliland
Gifts: Mrs. Amos Gilsdorf, Mrs. J. W. Bowen
Publicity: Mrs. Oscar Smith
Luncheon: Mrs. Donald Reichert, Mrs. Richard Raasch
Banquet: Mrs. H. L. Reichert, Mrs. A. J. Gumper
Past-presidents' breakfast: Mrs. R. W. Rodgers
Hospitality and courtesy: Mrs. Hans Galoien, Mrs. A. Sawchuck

1963-1964 Officers and Chairmen of Standing Committees

STATE OFFICERS

President: Mrs. R. E. Hankins, Mott
President-elect: Mrs. Clyde Smith, 622 Raymond St., Bismarck
First vice-president: Mrs. Lee Christoferson, 1307 S. 6th St., Fargo
Second vice-president: Mrs. M. M. Heffron, 2033 N. 4th St., Bismarck
Recording secretary: Mrs. M. A. K. Lommen, 831 Griffin St., Bismarck
Treasurer: Mrs. Roger M. Berg, 219 Ave. B West, Bismarck

STATE COMMITTEE CHAIRMEN

Membership: Mrs. Clyde Smith, 622 Raymond St., Bismarck
Program: Mrs. Lee Christoferson, 1307 S. 6th St., Fargo
Nominating: Mrs. J. W. Jansonius, 609 Fourth Ave. S.W., Jamestown
Parliamentarian: Mrs. R. D. Schoregge, 621 Ave. F West, Bismarck
Aging: Mrs. E. G. Vinje, Hazen
Liaison to SAMA: Mrs. T. H. Harwood, 2704 Belmont Road, Grand Forks
Bulletin: Mrs. George H. Holt, 214 2nd Ave. S.W., Jamestown
Historian: Mrs. D. J. Halliday, Kenmare
AMA-ERF: Mrs. D. G. McIntyre, 126 W. 11th St., Rugby
Health careers: Mrs. Sushen Thakor, 907 Griffin St., Bismarck
By-laws: Mrs. James F. Houghton, 1707 S. 9th St., Fargo
Community service: Mrs. Paul Ahlness, Box 85, Bowman
Publicity: Mrs. Walter Hanewald, RR1, Box 18, Dickinson
Rural health: Mrs. J. Terlecki, Minnewaukan
Mental health: Mrs. Robert DeLano, Northwood
Legislation: Mrs. R. F. Raasch, 30 W. 8th St., Box 990, Dickinson
Civil defense: Mrs. Richard Zanner, 1414 S. 6th St., Fargo
International health activities: Mrs. Calvin Fercho, 1747 S. 7th St., Fargo
Safety: Mrs. Alan Johnson, 1004 Twelfth St. W., Williston
Finance: Mrs. Henry Kermott, 200 Seventh Ave. S.W., Minot, chairman; Mrs. C. K. Fercho, 1747 S. 7th St., Fargo; Mrs. Walter Hanewald, RR1, Box 18, Dickinson; Mrs. Roger Berg, treasurer, 219 Ave. B West, Bismarck
Student loan fund: Mrs. R. D. Nierling, 415 Ninth St. S.E., Jamestown, chairman; Mrs. Lee Christoferson, 1307 S. 6th St., Fargo; Mrs. R. O. Goehl, 1015 Reeves Dr., Grand Forks; Mrs. M. H. Poindexter, 1350 S. 9th St., Fargo; Mrs. James Moses, 1111 W. Highland Acres Rd., Bismarck

OFFICIAL PUBLICATION

News, Views and Cues:
Managing editor—Mrs. J. H. Mahoney, 601 Eighth St., Devils Lake
District news editor—Mrs. Jens Sahl, 310 Ninth St. N.W., Minot
Business and circulation Mrs. Jon V. Eylands, 710 W. Third St., Rugby

District Presidents and Councillors and Chairmen of Special Committees

FIRST DISTRICT

President—Mrs. James F. Houghton, 1707 S. 9th St., Fargo
Councillor: Mrs. Robert Ulmer, 711 S. 19th Ave., Fargo

SECOND DISTRICT

President—Mrs. Stewart Cook, Rolette
Councillor: Mrs. Connor Corbett, 316 7th St., Devils Lake

THIRD DISTRICT

President—Mrs. Harold Evans, 1024 Reeves Drive, Grand Forks
Councillor: Mrs. Robert Painter, 1121 Belmont Rd., Grand Forks

FOURTH DISTRICT

President—Mrs. Carl London, 506 Main St. S., Minot
Councillor: Mrs. Paul Breslich, 818 4th St. S.E., Minot

FIFTH DISTRICT

Members-at-large

SIXTH DISTRICT

President—Mrs. J. M. Knudsen, 1443 E. Coulee Rd., Bismarck
Councillor: Mrs. R. F. Nuessle, 815 Griffin Street, Bismarck

SEVENTH DISTRICT

President—Mrs. John Swenson, 240 12th Ave. N.E., Jamestown
Councillor: Mrs. John Van der Linde, 1016 4th Ave. N.E., Jamestown

EIGHTH DISTRICT

President—Mrs. A. K. Johnson, 208 4th Ave. W., Williston
Councillor: Mrs. Chester Borrud, 729 W. 16th St., Williston

NINTH DISTRICT

President—Mrs. Christ Dukart, 208 4th Ave. W., Dickinson
Councillor: Mrs. Richard Raasch, 30 W. 8th St., Box 990, Dickinson

TENTH DISTRICT (Traill-Steele)

President: Mrs. Gilman Chase, Mayville
Councillor: Mrs. Robert W. McLean

SPECIAL COMMITTEES

Reading—Mrs. E. O. Hieb, 211 Hillcrest Drive N.E., Jamestown; Mrs. J. J. Jestadt, 419 15th St. N.E., Jamestown
Resolutions—Fourth District (Minot) took care of resolutions.
Nominations—Mrs. J. W. Jansonius, chairman, Mrs. V. J. Fischer, Mrs. L. E. Wold, Mrs. R. G. Clark, and Mrs. R. D. Schoregge
Alternates—Mrs. Henry Kermott, Mrs. C. R. Petty, Mrs. Gale Richardson, and Mrs. J. J. Jestadt

Report on the American Medical Association's Education and Research Foundation

This year the same fund raising projects were used. AMA-ERF notepaper and double-deck playing cards were sold. Other ways of earning money were memorials, assessments through dues, banquets, and balls. As of this writing, 9 districts have been heard from. Contributions, including $25 from the state auxiliary, totaled $449.60 sent to the national AMA-ERF. Per capita for the state (340 members), this is $1.47. The top 3 districts receive certificates of achievement: Ninth District (Southwestern) for the largest contribution per capita $4.17, First District (Fargo) for the largest contribution of $125, and Tenth District (Traill-Steele) for the largest increase over last year.

Mrs. D. G. McIntyre, Chairman

Report of Health Careers Committee

During our 1963-64 year our Health Careers Program in North Dakota has grown and prospered. We are gradually adding more new clubs to our already existing ones. To my knowledge there have been 2 active clubs welcomed to our group recently, one in Richardton and one in Mandan. This brings our number to 6 organized clubs in the state, with a membership of over 200.

Our year got off to a successful start with the fourth annual rally which was held on September 21, 1963, in Bismarck. We had a total registration of 171 boys and girls, and an additional 16 adults attended. The program was a most interesting one, with various large pieces of equipment on display such as artificial kidney, Isolette, IPB machine, circular bed, and iron lung. Each member had an opportunity to see these pieces in operation and talk with the aide from the hospital. The auxiliaries which have these various clubs as their projects can certainly feel proud of their achievement. However, I feel those districts which are without a club certainly are lacking in one of the most profitable endeavors that any auxiliary can undertake. We need to stimulate the interest in health fields in order to make sure that our future needs will be met. As the wives of medical men we should be keenly aware of this challenge and accept it. As your state health careers chairman, I am not only happy to assist you in starting your program but feel it is my responsibility to arouse more interest. This is certainly an area which will reap great rewards for anyone brave enough to sow the seeds.

Again may I stress the fact that these clubs need not be a headache for anyone? I have found that the basic need is there if we can only cultivate it. There is abundant literature available to help you and many, many willing hands.

May I suggest that for all of our districts a "must" is to receive the newsletter, "Health Careers Exchange," available free from the National Health Council, 1790 Broadway, New York 19, New York?

As a project for our state during my term I have written to the state careers chairman of each of our 50 states and have copies of their reports in regard to type of programs, special projects, scholarships, and so on, in which they participate. You might be surprised to learn that although we are small in quantity we do have quality in our programs. We compare very favorably with our fellow states. In many instances our programs are highly superior.

As careers chairman I have also taken part in many Careers Days in Bismarck and also outside of the city. One program in particular I remember had a total registration of 226. This certainly should substantiate the fact that the interest is already here.

In closing may I give you an example of some of the programs my particular group has had during the year?

1. I Am a Doctor—film
2. Helping Hands for Julie—film
3. Tour of St. Vincent's Nursing Home
4. Nurse Anesthetist
5. Pediatrics as a Profession—presented by local pediatrician
6. Hospital Administration, What Is It? Don Hanson, hospital administrator
7. Medical Technology—lecture
8. Pathology—lecture and tour of department
9. Operating Room Nursing—lecture and demonstration by operating room supervisor
10. Assisting with Immunization Clinic
11. Cancer Crusade Participation
12. Tour of Veterinary Clinic
    Film—C-Section of Cow
    Observation of delivery of hydrocephalic calf
13. General Practitioner in Our Society—lecture by doctor
14. Public Health Administration
    Dr. James Amos, state health officer
15. Dentistry—lecture
16. X-ray Technology—tour and lecture

In addition to these programs I have presently 25 boys and girls working as candy stripers at Bismarck Hospital and about 35 working at the Mandan Hospital.

I should like to leave this thought with you. Sometime, somewhere, everybody needs someone who works in health.

It has been said, "And all work is empty save when there is love." In health work one must be imbued with heartfelt yearning to serve others, "to work with love, and to bind yourself to yourself and to God."

To no one are these words more meaningful than to those in health careers who have directed their dreams, their training, and their energies toward serving others.

Mrs. S. J. Thakor, Chairman

Community Services Report

Homemaker services. In February 1959, 26 national voluntary agencies and 8 governmental divisions of the

Department of Health, Education, and Welfare sponsored the first nationwide conference on homemaker service. The AMA had a key role in promoting and financing the conference. It was held in Chicago, and its stated purpose was to stimulate the further development of homemaker services throughout the country. The AMA journal for March 21 reported the conference under this headline, "Homemaker Service as One Prescription for Today's Troubled Family." The journal quoted Webster's definition of "homemaker" as one whose occupation is household management, home operation, child rearing, and the creation of familial comfort. The journal further comments that Webster's definition did not envision the different kind of homemaker who has emerged as a product of our modern times and the one who embodies all of the definitions listed with this important addition: She is available to take over when the family's usual homemaker is absent or incapacitated. A continuing interest in homemaker services has been expressed by the AMA, continued the article, and it proceeds to define "homemaker" in terms used by the conference group, as "a woman who is employed to help a family help itself, rather than to provide domestic aid as is generally understood. She is chosen, trained, paid, and supervised by an agency which assigns her to homes where help is needed, most often because of illness or incapacity. She is equipped to care for the needs of the children, perform routine household chores, provide meals, and do the marketing. In days past, the help of mothers, sisters, and neighbors was often enlisted by families faced with difficulties, but the mobility of the modern family has frequently left it isolated from relatives and often with only a nodding acquaintance with neighbors. It is this social vacuum which the homemaker capably fills, to help keep family unity until the crisis passes."

Much difference of opinion still prevails concerning the philosophy of homemaker services. If the differences reflected a healthy respect for diversity this would be good. It is important that the audience like this know that in many places rational discussions of homemaker service programs are achieved only with difficulty. In the many communities from which you come, you can, with this knowledge, take a more objective point of view than do some of the overardent proponents of this or that way of providing homemaker services.

I do not pretend to understand the forces which perpetuate the arguments about suitable auspices, appropriate background of supervisor, title of employees, scope of services, full-time versus part-time staff, income levels of persons eligible for service, and many other issues. We probably do not need to understand what underlies these arguments. Fortunately, the trends I shall give you all indicate that those discussions, while time-consuming in many communities, are not interfering with a wholesome acceleration in the development of homemaker service programs. The wide range in successful patterns will surely soon establish that there is no single best way of making this much needed service available in all our communities—available to everyone, with those able to pay expected to do so.

In October 1963, 44 states, the District of Columbia, and Puerto Rico had 303 agencies which administer homemaker programs. Two years earlier there were 208. In only two years there was a 50% increase in number of agencies and a 75% increase in numbers of families served.

In general the increases in programs occurred in states already best supplied with such programs. About half of the new agencies are located in the 7 states each of which had more than 10 agencies in 1961. Ten states had no homemaker service programs in 1961. Six continue without one—Idaho, North Dakota, South Carolina, Utah, Vermont, and Wyoming. Three of the 4 states added to the roster by 1963 have only one program each. So progress, good as it is, is still slow and uneven.

What about auspices? The growth of homemaker services has altered very little their distribution among voluntary and public agencies. Of all programs, 60% are administered by voluntary agencies, with the family and child service agencies outnumbering all others. The visiting nurse-based programs have more than doubled, from 8 to 21. Six hospitals have homemakers on their staffs. Although a few independent programs have been added, the distribution remains the same—10%. Federal and state public financing have helped stimulate many of these new voluntary programs in family and child services agencies as well as in health agencies. Hopefully this trend will continue.

What about the background of the homemaker's supervisor? In 173 agencies he or she is a social worker and in 42 agencies, a nurse. Home economists and teachers and a variety of other professional backgrounds are also represented.

The title "homemaker" is still the most widely used, but agencies of all types are experimenting with "health aide," "visiting health aide," "home aide," "visiting home aide," "home health aide," and others. While some people seem to think that the title differentiates between the social work–oriented and the health–oriented program there is little or no evidence to support this. The so-called "social work–oriented" programs often serve ill people as well as those without health problems, and the so-called "health–oriented" programs serve some families in which the health problem is minor or nonexistent. Ideally, this dichotomy will soon end.

"What is personal care?" continues to plague many agency administrators. Questionnaires submitted by agencies reflect the underlying confusion about what personal care tasks are considered suitable for a homemaker to perform. Hopefully, this confusion will be clarified as wider and wider use is made of the report of the Arden House Conference on Homemaker Services, the 2 manuals prepared by the Woman's Auxiliary of the AMA, and the Bureau of Family Services' interpretation of "home health aide."

Is the use of part-time personnel increasing? Of the 4,000 odd employed in 1963, two-thirds were employed full time and one-third part time. One-fifth of the agencies had no full-time homemakers. Enthusiasts for the part-time worker maintain that there are large reservoirs of sensible middle-aged women who welcome the part-time job. Educationally, they are likely to be superior to those who must have full-time employment. Many of the situations to which they are assigned are wearing emotionally as well as physically. They can probably perform better on a part-time basis. My own judgment is that a combination of full- and part-time staff probably assures a higher caliber of staff and a greater ease in the management aspects of the program.

Employment practices of the voluntary and public agencies show a marked contrast, as is understandable. The voluntary agencies employed 66% of the full-time workers and 88% of the part-time ones.

According to the information furnished by agencies in October 1963, over half charge fees based on each family's ability to pay. One-fifth charge no fees. Information on fee charging was scanty and gave evidence of not being too accurate. Some agencies obviously confused fees with hourly wages paid to homemakers. This issue is near the heart of the dilemma of planning for new programs. There are those who think that only the most seriously deprived should be served. President Johnson's attack on poverty should accelerate the development of programs for those on the lowest rungs of the economic ladder, but unless homemaker programs also serve the aged and chronically ill who can afford to pay for care, their expenses for hospital and nursing home care will reduce many to the poverty level.

If my judgments are correct, we need about one homemaker per 10,000 population. So we need about 20,000 and we have less than 4,000. In most manpower estimates a fivefold needed growth is formidable. But this is not so in relation to homemakers. This country has an abundance of women who, if carefully selected, can be trained in a matter of weeks to perform the many tasks that constitute the homemaker's job. A fivefold growth is attainable.

What can you and I do to help stimulate the growth of the kinds of programs this paper has described as being useful? Each of us can help in different ways but also we can help in some of the same ways. For example, we can at every opportunity explain that, while professional supervision is an important ingredient of the homemaker service program, the homemaker per se is not a professional person. Let us protect this service from overprofessionalization. Let us emphasize the management end of the job. Scant attention has been paid to cost analyses. We know enough about the variations in cost to know that some agencies waste their professional staff members' time on extensive investigations, only to deny service because the family or individual can afford to pay for maid service or nursing care even when he needs a homemaker. It is not surprising that in such agencies the hourly cost of homemaker service exceeds that of a registered nurse. Let us help agencies attain or maintain a sensible perspective about homemaker service so that it is not "priced out of the market."

You are so situated that you can influence the creation of new programs and help them get a good advisory committee. The best of the new health–oriented programs all include among their advisors physicians and several wives of physicians. You understand the need for this kind of service; most of you, like your husbands, are "doers." You get the job done.

If money is needed to start a program, go to the local or state health and welfare department and to the regional offices of the Department of Health, Education, and Welfare. Federal funds are available here in North Dakota, and application forms are waiting. Health departments can initiate you into the differences among community health service, migrant health, mental health, and other public health and children's bureau health programs. State welfare departments can tell you about the different sources of funds available through the welfare administration.

And, finally, (if a project is decided upon) you can help prepare the application with accuracy and the kind of judgment that bids fair to result in approval of the project.

Be sure that financing of the program includes some fees or third-party payments the first year and more the second and third. Demonstration projects providing health services must have sound financial planning from the outset.

Help communities develop sensible, unpretentious, carefully thought out programs, with emphasis on the people served, not obsessively concerned with status of one or the other groups who make up the staff. We in the public health service, for our part, will do our best to see to it that funds available under the Community Health Services and Facilities Act continue to be used for this purpose. We believe in these programs and are glad to help get them started.

Bibliography. Excerpts from the following:

Development, Trends, and Philosophy of Homemaker Services, Lucille M. Smith. Presented Feb. 19, 1964, at a workshop on "Role of Dietary Services in Home Care for the Chronically Ill and Aged," held under the auspices of the American Dietetic Association and the Division of Chronic Diseases of the Public Health Service.

Homemaker Services, Mrs. Asher Yaguda. Delivered at Rocky Mountain Regional Conference on Aging, Salt Lake City, Utah. May 8 and 9, 1959.

MRS. PAUL AHLNESS, Chairman

Publicity Report

Forms were made out and presented to those attending the fall board meeting in Bismarck on October 10, 1963. They were to be filled in and presented to local newspapers in the various districts.

As a result of the questionnaire sent out in News, Views and Cues, 10 reports were returned. Judging from these returns publicity over the state has been good and auxiliary members are actively engaged in a wide variety of community endeavors. Forms were again presented at the state convention to be filled in and sent to local newspapers.

MARGARET HANEWALD, Chairman

Report of Rural Health Committee

In October I wrote to each district auxiliary president informing them of the new Rural Health Committee in our state, suggesting that every district president appoint a rural health chairman in her district. In accordance with the national rural health program I outlined a working plan, which included a list of organizations with which our members could work on a "share basis." Through this work I gained an insight into the problems of health in our state. I learned that even though we are a rural state, medical care and preventive services are excellent and measure up to those in urban areas. The many organizations in the state, such as homemaker clubs, P.T.A., rural community clubs, federated women clubs, and youth organizations, have in their programs some health projects. Since the majority of the auxiliary members are active as leaders or members in these organizations, they individually contribute to these projects. From my communications with district and state auxiliary members I learned that the oral polio immunizations were the outstanding activity of 1963-64, and here again many auxiliary members have given their assistance.

In the area of health education the State Health Department is providing a new type of professional service. During the past year Dr. Alice Peterson, Director of the Maternal and Child Health Division, has traveled extensively through the state, lecturing in schools to students and P.T.A. groups on adolescent health and the family relationship as an influence on physical and mental health. There is an increased demand for this kind of general health knowledge. In some communities auxiliary members have suggested these lectures to the school authorities. Those who participated were favorably impressed. It was a good service, since the health professions can best serve an informed citizenry.

SOPHIA TERLECKI, Chairman

Report of Mental Health Committee

The North Dakota medical auxiliary has been slow to take an active part in a forceful mental health program. All districts were encouraged to show the film, "Cry for Help," in conjunction with our national suicide prevention program. We had 4 reports of the showing of this film.

Most of the work done for mental health was done on an individual basis by auxiliary members. Mental health literature was distributed by some. Two reports included volunteer work at the state hospital or private facilities. Help was given to a county mental health survey.

As a state, North Dakota is making advances in our program. Governor Guy released a report which included the following recommendations for our state: more community mental health centers, more money to operate programs at the state hospital, a central agency to coordinate community and state hospital services, and many recommendations relative to the improvement of our state hospital.

Dr. A. F. Samuelson of the state Mental Health Authority addressed the state medical auxiliary at their annual meeting. We hope this will stimulate interest in our next year's program.

Mrs. Robert DeLano, Chairman

Legislative Report

"Operation Hometown" are words which we have heard a great deal in the past months and will hear much more of and about in the immediate future.

These words represent medicine's challenge to the King-Anderson bill H.R. 3920 Hospital Insurance Act of 1963.

The Woman's Auxiliary to the North Dakota State Medical Association answered this challenge early last fall, and its members have responded willingly and efficiently to this challenge to preserve the freedom of medicine with the high standards of medical care we all enjoy.

To help the district legislative chairmen meet the challenge of Operation Hometown, packets containing material sent from the national office were mailed to each of the 10 North Dakota districts on September 11, 1963.

These kits contained the following materials:

1. Basic program for legislation
2. Operation Hometown material list
3. What can the auxiliary do?
4. What is Operation Hometown?
5. Physicians' wives in politics
6. Health care under social security.

Reports from most districts indicate that the members have received and used the Operation Hometown letter-writing kits which were distributed in each district by a member of their respective medical society.

These kits provided the tools and techniques for the Woman's Auxiliary to present the case against the King-Anderson bill to their fellow citizens, for this campaign is designed to reach people of all walks of life through every possible medium to encourage them to inform their congressman that Social Security financing for health care of the aged is neither needed nor wanted.

Thus, many letters have been written, much telephoning has been done and parties have been given by auxiliary members to acquaint their neighbors, their friends, and the public with the hazards of the King-Anderson bill.

This year the major debate theme chosen in the high schools was Social Security and medical care, and kits were developed by the AMA to be distributed to the high schools.

The Woman's Auxiliary was requested to assist in the distribution of these debate kits to the high schools where there were debate teams.

Early in September, 32 auxiliary members in 26 cities of North Dakota were contacted and requested to arrange appointments with the debate instructors of their high schools for distribution of the kits by Daniel E. Buchanan, director of public information and education of the North Dakota State Medical Association.

These kits contained the booklets:

1. Federalized Health Care for the Aged?
   (a critical symposium)
2. Financing Medical Care
   (an appraisal of foreign programs)
3. Vital Questions and Factual Answers on Health Care for the Aged.

Mr. Buchanan reports that 696 debate kits have been distributed since last summer. The auxiliary members across the state were instrumental in the placing of 325 of the total number distributed.

Mr. Buchanan also reports that the schools were most receptive to medicine's material on the debate question, and he attributed much of the receptiveness to their being approached by the auxiliary members in their own communities.

Besides working on the Operation Hometown team many auxiliary members have also been active in the political party of their choice, working on the local and statewide levels and in many and varied capacities.

As doctors' wives we have a very important part to perform in shaping medical legislation now and in the future. Let us all become interested in legislation. We will find it most worthwhile.

Mrs. R. F. Raasch, Chairman

International Health Activities Report

The International Health Activities Committee was started this year in North Dakota. All 10 district presidents were notified and approximately 8 committee chairmen appointed. The basic program was explained in the fall, with emphasis upon sending sample drugs and bandages due to North Dakota's location in relation to outlets.

A letter was sent to every member of the North Dakota State Medical Association through their secretary's office asking them to participate in the program by sending sample drugs to World Medical Relief, Inc., which is the closest outlet approved by the American Medical Association.

The results have been gratifying. As of April 15 I have received word that 18 boxes of sample drugs have been shipped to World Medical Relief, Inc., from various locations in North Dakota, and 2 barrels of drugs have been shipped to Almas, Honduras. Two groups in North Dakota have sent boxes of bandages prepared from old sheets to World Medical Relief, Inc. Perhaps a number of other items have been sent of which we are unaware.

Many doctors and auxiliary members plan to bring their drug samples, books, and bandages to the state convention in Minot to be packed and shipped from there.

Mrs. Calvin K. Fercho, Chairman

Report of the Safety Committee

A hazard-free home today is a safe, happy home tomorrow. This was the motto used by your safety chairman this past year. There are, of course, many areas of safety and, therefore, a general letter was sent to each district chairman along with reprints on "The Use of Seat Belts" and "Where Johnny Got His Gun." Also included with this material was a basic sheet for safety.

Dr. and Mrs. R. E. Hankins attended the first national Rural Safety Conference which was held at the Drake Hotel in Chicago in April 1963.

Gun safety was stressed by the AMA, and the AMA material was sent to each district. "Guns don't kill people but people with guns do." This is a shocking but true statement.

Returns from the questionnaire in the News, Views and Cues showed that a few did try to present the program material, and one made an attempt to find a gun safety instructor. As a whole, I am sure that everyone benefits by any safety materials that they receive; even if the material is not used to its fullest extent, it at least serves as a reminder to many who do receive it. From this, others are reminded by general conversation.

Safety, regardless of the different types, cannot be stressed too much. We must continue to work and develop our safety programs.

Inga Johnson, Chairman

News, Views and Cues Report

We have published 4 issues of News, Views and Cues this year and plan to put out a summer issue on the convention.

We have tried to incorporate articles by committee chairmen, as well as personalities along with the usual district news.

Once again, Blue Shield has kindly paid for our postage.

I wish to thank my district news editor, Mrs. Jens Sahl, and business manager, Mrs. Jon Eylands. They have both done a fine job.

Mrs. J. H. Mahoney, Managing Editor

All bills are paid to the "Devils Lake World Printers."

October 21, 1963, a total of 400 copies of News, Views and Cues was sent to all auxiliary members, editors of each state auxiliary publication, and all national auxiliary officers. A bill in the amount of $55.62 was submitted to the treasurer and paid.

December 11, 1963, a total of 450 copies of News, Views and Cues was sent out to a new mailing list of auxiliary members, plus the various state editors and the national officers. A bill of $58.18 for this issue was submitted to the treasurer and paid.

February 20, 1964, a total of 450 copies of News, Views and Cues was sent out to the same mailing list as above. This bill included printing plus a "cut" which was used in this issue. A bill of $64.83 was submitted to the treasurer and paid.

April 1964 we will have another issue in the mail just before convention time. June 1964 we hope to have something new this year—a postconvention issue.

Barbara Eylands, Business and Circulation Manager

News, Views and Cues is our means of communication between the 10 districts. It is of interest to be informed of national and state news, the president's reports, committee reports, and all the activities within each auxiliary. For all members it is the most complete contact a member can have with her own state auxiliaries.

Copies of your auxiliary paper were issued in October, December, February, and April. This year there will also be a summer postconvention issue. Most of the districts contributed for each issue. Some day perhaps an issue will be sent out in which all districts are represented.

This year again we followed our outline of 10 broad sections: meetings and auxiliary projects, membership, community service, progeny, illnesses, in memoriam, travelogue, and miscellany. A summary of the year's reports would read: The auxiliaries had interesting programs and some worthwhile projects, welcomed 10 new members and said farewell to 6 members, and showed interest in their communities; sons born outnumbered daughters born 10 to 1; outstanding achievements of children of our members were acknowledged; our thoughts went out to those who had illnesses or lost a dear one; and we reported that many enjoyed the experience of travel to foreign lands and many traveled to national and state meetings.

Without the various reports and information, the councillors and their reporters and you newsy people, the News, Views and Cues could not be complete. Your interest is appreciated. We are always striving for better and most interesting issues.

Elaine Sahl, District News Editor

Medical Auxiliary Loan Fund Report

The financial report for the calendar year of 1963-64 is as follows: Net worth of the fund in its thirteenth year is $28,833.39.

Cash balance January 1, 1963	$ 7,485.13
Add receipts:	
Principal	1,061.29
Interest	24.58
Annual donation (May 1963)	2,379.00
	$10,950.00
Deduct loans made	14,325.00
Cash balance December 31, 1963	$ −3,375.00 (deficit)*

*According to Mr. A. F. Arnason of the medical school, troubles with the installation of the IBM computer had put bookkeeping far behind, and loans made last spring were not posted. Thus, assuming a larger balance, more loans were made than our funds would cover. This deficit was supplemented by medical school funds and not considered serious. Twenty-eight loans were made in 1963.

Mr. Arnason is asking for permission to use our annual donation for matching federal funds, at a 1:10 ratio, which would bring them around $20,000. These government loans are interest free until the doctor starts to practice, and then the rate is 4%.

The contributions this year from each district are very commendable and are as follows:

First District (Fargo)	$500
Second District (Devils Lake)	104
Third District (Grand Forks)	100
Fourth District (Minot)	380
Fifth District (Valley City)	18
Sixth District (Bismarck)	560
Seventh District (Jamestown)	230
Eighth District (Williston)	90
Ninth District (Dickinson)	50
Tenth District (Traill-Steele)	20
Total	$ 2,352

May 1964: Net worth $28,833.39

Mrs. R. D. Nierling, Chairman

Auxiliary President's Report—First District

The size of the First District Medical Auxiliary has increased to 87 members and 4 prospective members. We met at 4 luncheon meetings this year, and attendance was very good.

Our first meeting was in October, and we heard a very informative and stirring firsthand report of the freedom march in Washington, D. C., by a member of the faculty of Concordia College, Dr. Martin Lutter.

Dean Ted Harwood from the medical school at Grand Forks joined us for our second luncheon which was held in January. He presented, at our request, a most informative picture of how the money in the medical auxiliary loan fund is used. After speaking at our meeting, Dean Harwood made a brief but effective appearance on Party Line (WDAY-TV) where he told about the loan fund and our benefit ball, which is our fund-raising project.

Our ball was held two weeks after Dean Harwood's visit, and the theme this year was "Hearts and Flowers." Mrs. Tom Hamilton was chairman, and a good time was had by all who attended. As a result of our ball we were able to send a check for $500 to the medical auxiliary loan fund and a check for $100 to AMA-ERF.

Mrs. R. E. Hankins, state auxiliary president, joined us at the Fargo Country Club for our third luncheon which was held in March. It was a pleasure to have her with us and to hear her talk.

Mrs. John Goff is auxiliary chairman for Operation Hometown, and we have been helping the men with several phases of this very important effort. Our community service chairman, Mrs. E. P. Wenz, has kept busy providing cakes for the senior citizens and has had several additional service projects to look into this year. Mrs. Neal Goltz is our international health activities chairman. We have sent many journals and medical instruments to Asia, and just recently several of our members got together and rolled bandages to be sent to the international health organization.

Our fourth and last luncheon of the year will not be held until a few days before the state convention. It will be a social meeting, and we will have a sportswear style show put on by one of the department stores. Our one item of business will be the report of the nominating committee by its chairman, Mrs. William Webster. The officers for next year will be, president, Mrs. George Ivers; vice-president, Mrs. L. G. Pray; secretary, Mrs. Donald Barnard; treasurer, Mrs. John Magness; and councillor, Mrs. Calvin Fercho.

Mrs. J. F. Houghton, President

Auxiliary President's Report—Second District

The Devils Lake District Medical Auxiliary held 7 meetings during the past year. In addition to this, the auxiliary met in September and held a party in honor of Mrs. Ted Keller, formerly of Rugby, who left in October for Oregon. Mrs. Keller had been a member of the auxiliary since its inception and was state president from 1950 to 1951. The group presented her with an engraved spoon.

Dr. A. R. Cuadrado, medical director and superintendent of our state sanatorium, was a guest speaker at our November meeting. He gave a very interesting talk describing the sanatorium as a dual facility, which it is in its present state, caring both for the TB patients and the mentally retarded.

At the March meeting our state president, Mrs. Robert Hankins of Mott, was our guest speaker.

A donation of $15 was made to AMA-ERF, of which Mrs. D. G. McIntyre, Rugby, is state chairman. We also gave $104 to the Student Loan Fund.

Our district has 26 members; this includes 7 new members who joined this past year. We have 4 members subscribing to the bulletin; 4 of our members have been state officers for 1963-64, namely Mrs. Donald McIntyre, Rugby, state chairman for AMA-ERF, and Mrs. James Mahoney, Devils Lake, editor of News, Views and Cues, with Mrs. Jon Eylands, Rugby, as circulation manager, and Mrs. J. Terlecki of Minnewaukan, state chairman for rural health. Our members are active in local community projects, including hospital auxiliaries, P.T.A., Girl Scouts, Cub Scouts, and choral and church groups.

The new officers for 1964-65 are: president, Mrs. D. G. McIntyre; secretary-treasurer, Mrs. Jon Eylands; and councillor, Mrs. Connor Corbett, Devils Lake.

Mrs. Stuart Cook, President

Auxiliary President's Report—Third District

The Third District Medical Auxiliary held 4 dinner meetings during the year 1963-64. Membership for the year was 53.

The general theme for the year was "Operation: Hometown," starting with "Operation: North Dakota." In October Mr. Charles Searl of the Grand Forks Chamber of Commerce showed a film on the state of North Dakota—its resources and industries.

November was "Operation: State President" of auxiliary, Mrs. Hankins, who gave an illustrated and interesting talk on auxiliary plans and projects.

January was "Operation: Fallout," an informative talk by Dr. Ralph Mahowald on the dangers of radiation.

March found us with "Operation: Stock Market," and our own member and stock broker, Mrs. K. E. Fritzell, gave suggestions for wise investment of our money.

Our members have given their time to many community services. Our debate kits were used by the Central High School, and in February at a joint meeting of doctors and their wives we heard 4 students debate medicare.

Before the King-Anderson bill was reintroduced to the House Ways and Means Committee in March our members cooperated with the Third District Medical Society in their endeavor by mailing 1,450 letters in this and other nearby communities.

The dinner dance held for the medical auxiliary loan fund was a formal affair held April 11, and our contribution was $400.

The following officers were elected for 1964-65: president, Mrs. Charles Graham; vice-president, Mrs. Thomas

Schafer; secretary, Mrs. John Lambie; treasurer, Mrs. Kenneth Helenbolt; and councillor, Mrs. John Ruud.

Mrs. Harold W. Evans, President

Auxiliary President's Report—Fourth District

The Northwest District Medical Auxiliary has held 2 evening meetings in the homes of members, one afternoon meeting as guests of the wives of the Air Force doctors and one dinner meeting with the Northwest District Medical Society.

Our first meeting, which was held in October, featured Marcy Hart, the daughter of one of our members, who spent the summer in Finland as an exchange student. Marcy showed slides and spoke on her life as an exchange student.

In December we held a joint meeting with the Northwest Medical Society. The debate team from Minot Senior High presented the program, debating the topic "Medical Care for the Aged Under Social Security."

In January, despite bad weather, our state president, Mrs. Robert Hankins, was our honored guest. Mrs. Hankins gave us much to think about and showed us her large record book.

At our April meeting, we had the wives of the Air Force doctors as hostesses. They arranged the program for the meeting. We voted at this meeting to act as sponsors of the home firearm safety course.

At our May meeting we will elect officers for the coming year and will decide what local project or projects we will contribute to.

The Northwest District Medical Auxiliary has 40 regular and 2 honorary members.

We continue the policy of a $10 assessment for student loan, which is not compulsory, and our total for this year was $380.

The contribution for AMA-ERF came to $80.

Subscriptions to the bulletin are taken out of each member's dues.

With Mrs. George Hart and Mrs. Samuel Shea as co-chairmen, all our auxiliary members have cooperated in working on the arrangements for our state convention.

At least 30 of our members are active in community service.

Mrs. Carl London, President

Auxiliary President's Report—Sixth District

Before our first meeting, letters of invitation were sent to all prospective members and wives of residents. A calling committee called each of these persons before our meetings to encourage attendance and membership and assure a reservation. The secretary dropped a postcard to those living outside Bismarck.

During the year we had 3 dinner meetings in conjunction with our husbands of the Sixth District Medical Society and one luncheon. After the dinners, we held our own auxiliary meetings.

Our first meeting was held October 15. We had been invited by the Sixth District Medical Society for a social hour and dinner and to hear their guest speaker, Dr. Malcolm McCannel of Minneapolis, who presented a film on "Project Hope." Dr. McCannel also gave a very amusing and informative talk about his experiences on the hospital ship "Hope." After this we held our auxiliary business meeting. Mrs. S. J. Thakor, advisor for the Bismarck and Mandan Medical Careers clubs, reported on the state meeting of the medical health careers which was held September 21, 1963. There were 171 members and 15 advisors present, a very successful health careers meeting! Mrs. C. L. Smith, state president-elect, presented a brief report on the fall conference meeting which was held in Chicago. Several members volunteered to act as hostesses at the annual Bismarck art show. New members were introduced, and good wishes were extended to Mrs. Warren Pierson who was leaving with her husband to serve as medical missionaries in Ethiopia. Pearl Spielman invited everyone to help her celebrate her 75th birthday, which was on October 28, 1963.

On November 12, 1963, we held our second meeting, preceded by a social hour and dinner with our husbands. The speaker for our auxiliary meeting, who was introduced by Mrs. William Buckingham, was Mr. Roy Towne of Dempsey-Tegeler Investment Co., whose topic was "How to Start an Investment Club." This initiated a very spirited discussion period.

The debate teams of Bismarck and St. Mary's high schools gave a stimulating debate on "Medical Care for the Aged Under Social Security" at our meeting on January 28, 1964. Mrs. R. E. Hankins, our state president, was our guest at the combined social-dinner hour and meeting afterwards. It was announced that the La Sertoma Service Club of Bismarck was giving its annual award for youth achievement in the community to the Bismarck Medical Health Careers Club.

New officers for the coming year were elected at the April 18 luncheon meeting. They are: president, Mrs. Ralph J. Dunnigan; vice-president, Mrs. S. J. Thakor; secretary, Mrs. P. L. Owens; and treasurer, Mrs. W. D. Waldschmidt.

Mrs. R. F. Nuessle is our councillor. Delegates to the state convention in Minot are Mrs. J. W. Cleary and Mrs. W. D. Waldschmidt.

The officers for 1963-64 were: president, Mrs. J. M. Knudsen; vice-president, Mrs. Ralph Dunnigan; secretary, Mrs. John Sauer; and treasurer, Mrs. C. H. Peters.

State offices held by members of the Sixth District were

President-elect and membership	Mrs. Clyde Smith
Second vice-president	Mrs. M. M. Heffron
Recording secretary	Mrs. M. A. K. Lommen
Treasurer	Mrs. Roger Berg
Parliamentarian and nominations	Mrs. R. D. Schoregge
Health careers	Mrs. S. J. Thakor
Student Loan Committee	Mrs. James Moses

Sixth District Auxiliary has 56 members and 29 bulletin subscriptions, has contributed $30.20 to AMA-ERF, has advanced $560 to the medical auxiliary loan fund of the University of North Dakota School of Medicine, and has sponsored the Bismarck Medical Health Careers Club.

I wish to thank the officers; committee chairmen; News, Views and Cues Calling Committee; and Arrangements and Reservations Committee for their cooperation.

Mrs. J. M. Knudsen, President

Auxiliary President's Report—Seventh District

The following is a summary of the Stutsman County Medical Auxiliary's activities for the year 1963-64:

Community service and auxiliary projects.

1. We provided our annual Christmas basket of food and clothing to two needy families.
2. We sponsored a senior citizens party in January (our second year at this) with 85 in attendance and provided the rides, food, and prizes.
3. We sponsored our annual birthday party at the state hospital in March in conjunction with the

dental wives and provided cake, ice cream, and prizes for 135.

4. In May we will sponsor a mother-daughter tea at the crippled children's school for 34 students. This is a new project.
5. Our members participated in the fund-raising efforts of the Heart Fund, March of Dimes, and United Fund. Our members are active in the Crippled Children's School Auxiliary, the hospital auxiliaries, church, Sunday school teaching and church circles, the scouting program, P.T.A., P.E.O., A.A.U.W., study club, and community theater.

State and national auxiliary projects.

1. We made the school board survey.
2. International Health Activities:
   a. In response to Mr. Limond's request several doctors sent boxes of drugs to the specified address.
   b. We will bring leftover drugs to the convention.
3. Gun safety program:
   We are in the process of passing a resolution to support the proposed legislation of the North Dakota Wildlife Federation for instruction in the proper use of firearms as a prerequisite to the issuance of hunting permits to complement the auxiliaries' gun safety program.
4. Operation Hometown:
   a. We have organized our committees with the men's society and are in the process of becoming self-informed and informing others.
   b. We distributed debate kits to the high school and will hear a high school debate team in April.
5. Medical auxiliary loan fund:
   Each member is assessed in their dues $10.
6. AMA-ERF fund:
   Each member is assessed in their dues $2.
7. We sponsor the Future Nurses' Club with a working budget of $20. There are 20 members.

Mrs. John A. Swenson, President

Auxiliary President's Report—Eighth District

Kotana Medical Auxiliary does not have a stated time to meet; however, we do try to get together at least two or three times a year.

Two of our members moved away this past year: Mrs. Charles Walker moved to Minneapolis and Mrs. Charles Petty to Hamilton, Montana. Two new members joined our group: Mrs. Jerome Olson, whose husband is associated with the Williston Clinic, and Mrs. Robert J. Olson, whose husband is the radiologist serving both hospitals and the 3 clinics.

We were honored by a visit from our state president, Mrs. R. E. Hankins, this past January, and in March we had a joint meeting with the Kotana Medical Society and the local dental society and their wives. Guest speaker was Dr. Arnold Kremen of Minneapolis who spoke on "Cancer of the Head and Neck." Dr. Amos Gilsdorf, the president of the North Dakota State Medical Association, was also a guest.

Kotana Medical Auxiliary contributes a gift of money to the AMA-ERF and the medical auxiliary loan fund. Also, a subscription of Today's Health is given to the local library each year.

Mrs. Alan K. Johnson, President

Auxiliary President's Report—Ninth District

The Southwestern District Medical Auxiliary held 5 dinner meetings during the year 1963-64.

The June meeting, our annual joint meeting of the medical society and its auxiliary, was held in Mott, hosted by Dr. and Flo Hankins. Due to inclement weather, very few members were present, and the business meeting was omitted.

The first fall meeting in October was held at the home of Mrs. D. J. Reichert, preceded by a potluck dinner. Our state president, Flo, gave a most interesting report on the national convention held in Atlantic City in July. Final reports of our state convention (May 1963) were also given.

Our December meeting, which is the annual Christmas dinner dance with our husbands, was canceled, due to conflicts of busy schedules and absent members. However, both societies met in January for a combined dinner meeting.

The regular February meeting was held at the home of Mrs. C. R. Dukart, preceded by dinner at the Elk's Club. Following the business meeting, Mrs. Robert Hankins spoke to the group on the different projects of the auxiliary and displayed the materials available pertaining to each project. A report of the Nominating Committee was as follows: president, Mrs. Paul Ahlness; vice-president, Mrs. Hans Guloien; and secretary-treasurer, Mrs. Andrew Sawchuk. A motion was made and carried that the slate of officers be accepted. Delegates elected to the state convention were Mrs. L. H. Reichert and Mrs. Richard Raasch. A motion was made and seconded to send $50 to the AMA-ERF and to the medical auxiliary loan fund.

The April dinner and meeting were held at the Elk's Club. A report was given on the Future Nurses' Club, which continues to be a project sponsored by the Auxiliary. Mrs. Hanewald and Mrs. Foster acted as advisers to the group of 20 this year.

The combined efforts of the medical society and its auxiliary are credited with sending 2 large shipments of drugs for the international health activities. We are currently trying to find an organization to sponsor the gun safety program.

State and national dues were sent in for 25 members, 12 of whom subscribe to the bulletin.

Mrs. C. R. Dukart, President

Auxiliary President's Report—Tenth District

In the late forties, when the Traill-Steele Medical Auxiliary was first organized, the members' primary purpose was to support the medical activities of their husbands through their social meetings. Because of the geographical limitations, with only one or two members in each town, it has been impossible to promote any large-scale project, although the 9 members of the district contribute to AMA-ERF and the medical auxiliary loan fund.

Each of our members is active in her community, and we have found that in a rural area such as ours a great deal can be accomplished through the women's clubs, church organizations, and homemaker services. It is through the latter that our medical self-help demonstrations and DPT surveys have been most effective.

During the past year, Dr. and Mrs. Russell Odegard of Hatton have moved to Minot and are now a part of the Fourth District. Dr. and Mrs. Mergens have gone from Hillsboro and are now residing in Omaha, Nebraska, where Dr. Mergens is spending a year of study at the

Nebraska Psychiatric Institute. We welcomed 2 new members, Mrs. Donald Breen of Hillsboro and Mrs. Ronald Kloster of Mayville, and hope you will soon have an opportunity to meet them.

In the absence of our president, Harriet Odegard, Mrs. Gilman Chase of Mayville is acting president. At a recent meeting the following officers were elected for the coming year: president, Mrs. Carl Oja, Portland; vice-president, Mrs. Gilman Chase, Mayville; treasurer, Mrs. H. A. LaFleur, Mayville; and councillor, Mrs. R. W. McLean, Hillsboro.

Mrs. Gilman Chase, Acting President

Convention Report

Luncheon was served in the Tree Top Room of the Clarence Parker Hotel in Minot, May 4, at 12:20 p.m., with Mrs. Clyde Smith, state president-elect presiding. The theme was "Springtime;" net topiary trees of pastel colors decorated the tables, and a centerpiece of net and seed packets was on the speaker's table. Seed packets and sachets with net flowers decorated the places of the head table. Lovely orchid corsages were presented to Mrs. E. R. W. Fox, Mrs. Clyde Smith, Mrs. Carl London, and Mrs. R. W. Hankins.

Mrs. Clyde Smith welcomed all present and introduced Mrs. Jens Sahl, luncheon chairman. In turn she introduced the guests at the head table: Mrs. E. R. W. Fox of Coeur d'Alene, Idaho, our honored guest who is director and reports chairman of the Woman's Auxiliary to the American Medical Association; Mrs. R. E. Hankins; Mrs. Carl London; Mrs. M. A. K. Lommen; Mrs. R. M. Berg; and Mrs. L. A. Christoferson. The speaker was Dr. G. A. Dodds of Fargo, president-elect of the North Dakota Medical Association.

Mrs. George M. Hart and Mrs. Samuel Shea, co-chairmen of the convention, were introduced by Mrs. C. Smith.

Mrs. Clyde Smith said that her theme for the year is "You're Married to Medicine." She commended Mrs. R. E. Hankins for her grasp and accomplishments in the past year. She said that we cannot expect to do some things that the other states do. It was her suggestion that, if each member were to save a nickel a day to help the students at the University of North Dakota Medical School, a sum of $6,205 could be furnished to help meet the needs.

Dr. G. A. Dodds of Fargo, president-elect of the North Dakota Medical Association, brought greetings from the association. He thanked the auxiliary for support of the medical auxiliary loan fund and the American Medical Association Education and Research Foundation and individual efforts in the field of public opinion and public relations. He presented the doctor's wife as a paragon among women, no ordinary mortal. She is married to an exacting taskmaster, a rugged individualist whose profession is paramount; yet the true success of a physician is the stature of his wife.

Four beautiful hand-blocked silk scarves were given as door prizes. These were the artistic work of Ann Swann of Minot. Those fortunate enough to win were Mrs. P. O. Triggs, Mrs. W. D. Waldschmidt, Mrs. M. H. Poindexter, and Mrs. J. V. Sessums, Jr. Two of these lovely scarves were presented to Mrs. E. R. W. Fox and Mrs. Carl London.

The closing banquet was held in the Continental Room of the Clarence Parker Hotel, with Mrs. Carl London presiding.

Mrs. Paul Breslich introduced Mr. John Spoolstra, assistant professor of music at Minot State College, who directed a choral group of 15 young women and an accompanist who presented 4 selections.

The address of the evening was given by Mrs. E. R. W. Fox, director and reports chairman of the Woman's Auxiliary to the American Medical Association. She brought greetings from the national auxiliary and from her home state of Idaho and her city of Coeur d'Alene.

Mrs. Fox said that forty-two years ago 24 women representing 9 states gathered in St. Louis, Missouri, to organize the Woman's Auxiliary to the American Medical Association. There is now a membership of 84,400. The AMA membership is over 200,000, which means that 116,000 doctors' wives are not auxiliary members. The object of the auxiliary is to assist the AMA in its program for the advancement of medicine and public health. The larger budget and more working committees are evidence that the program of the Woman's Auxiliary is growing.

Mrs. Fox stressed the four C's of auxiliary progress:

Cooperation is collective action for mutual interest. AMA advisers each year indicate where priority and emphasis are to be given in our program. The individual auxiliary determines the choice of a project best suited to local needs. The national auxiliary has 16 working committees whose chairmen suggest projects and programs to the state chairmen, who in turn pass them on to the county chairmen for action. This action can be realized only after approval has been obtained from the county medical society advisers.

Coordination is harmonious adjustment and functioning. In order that your state and county programs function smoothly, the national and regional chairmen are willing to help you in any possible way.

AMEF, established in 1951 to provide financial aid to medical schools, combined with the AMA Research Foundation in January of 1962. This committee, known as AMA-ERF has the same purpose—"to raise funds by individual donations to supplement the budgets of the medical schools in the United States." Because medical schools have been operating at an annual deficit, the AMA and the auxiliary take the stand that these financial problems are best solved by private means rather than by government aid. The loan fund now totals $1,782,159. A total of 8,340 individuals have received loans with nearly $14 million in principal by the end of 1963, and 85 medical schools are represented in this program.

A new grouping plan was begun this year to further coordinate auxiliary activities and planning. Under the program chairman, a working group was composed of chairmen of AMA-ERF, bulletin circulation, legislation, and membership. The community service chairman had her working committee composed of chairmen of Civil Defense, health careers, international health activities, mental health, rural health, and safety committees.

What progress had been made in health careers and what work must be done in the future? Last year $315,000 was raised to aid students in health fields, a figure of which the auxiliary can be proud. Youth must be recruited in all fields of health careers. There is a shortage which has developed because of an ever increasing demand for health services, population increases, and educational level rises. As a doctor's wife you can sponsor more health career days, science fairs, and similar activities. Inform the public of these shortages by talking to the PTAs and church and civic groups, show films, and distribute literature about the various careers.

International health activity is a fairly new member of the committee family. Bandages, textbooks, drugs, and equipment of all sizes are direly needed in many countries of the world. The world community benefits by the efforts of the auxiliary collections.

Communication is the interchange of thoughts and ideas. The bulletin, official organ of the Woman's Auxiliary, serves as a means of communication from your national chairmen and presents new thoughts and ideas from the various states. A new bulletin began with the May issue. Each paid up member will be receiving it.

The preservation of American medicine continues. Help inform the American public to the dangers inherent in King-Anderson types of legislation. There has been a long history to the legislation for federal health care. In 1935 President Roosevelt's Committee on Economic Security issued a report calling for passage of the Social Security Act and endorsing the principle of a national compulsory health insurance plan. The President did not endorse the health proposal then or at any time during his presidency. The Murray-Wagner-Dingell bill was introduced in 1943 and called for a national compulsory health insurance plan. In 1945 President Truman proposed a national medical insurance plan for all ages financed by higher social security taxes. In 1949 President Truman's plan was embraced into a new Murray-Wagner-Dingell bill which touched off a major fight in Congress. Hearings were held before the Senate Labor and Public Welfare Committee, which did not act on the measure. In 1954 President Eisenhower proposed a government reinsurance plan for private insurance companies providing health insurance for the aged. This was defeated in the House, 238 to 134. There was no Senate action.

In 1957 Representative Forand introduced legislation (Forand bill) to provide medical-hospital benefits for aged social security beneficiaries through higher payroll taxes. Hearings were held in 1958 before the House Ways and Means Committee but there was no action. In 1960 the House Ways and Means Committee shelved the Forand bill by a 17 to 8 vote and approved the voluntary Kerr-Mills federal-state program of aid for the medically indigent elderly. This was passed by Congress and became law. In 1960, the Senate defeated a version of the Forand bill cosponsored by Senator John Kennedy by a 51 to 44 vote. In 1961 hearings were held by the House Ways and Means Committee on the administration's Forand-type proposal, but there was no action. In 1962 a revised version of the controversial legislation knocking out some medical benefits and providing benefits for all of the aged was defeated in the Senate by a 52 to 48 vote. July 17, 1963, the King-Anderson bill was defeated. Defeat of undesirable legislation can be accomplished by you in the local medical society and its auxiliary.

Continuity is something that gives continuous sequence. Do pass on the knowledge and materials gained and accumulated during your term in office for from the past we learn for the progress we will make in the future.

Mrs. E. R. W. Fox, Director and Reports Chairman

Mrs. Lorman Hoopes and Mrs. G. H. Heidorn were cochairmen of the Monday evening banquet.

Mrs. E. R. W. Fox installed the officers for the coming year. Mrs. R. E. Hankins placed the president's pin on Mrs. Clyde Smith. Mrs. V. J. Fischer thanked Mrs. R. E. Hankins for her leadership, hard work, representation at meetings, and fun in auxiliary this year and presented Mrs. Hankins with a past president's pin.

Mrs. Paul Ahlness, Southwest District, presented a token of esteem and thank you for leadership, an engraved silver dish from Southwest District, to Mrs. R. E. Hankins.

Mrs. Henry Kermott presented a silver dish to Mrs. E. R. W. Fox in appreciation of her representation from national.

The announcement was made that the convention will be held next year in Grand Forks.

Mary E. Lommen, Recording Secretary

Postconvention Board Meeting

Mrs. Clyde Smith called a postconvention board meeting to order immediately following the afternoon Convention adjournment.

The following were elected to the Nominating Committee: Mrs. R. E. Hankins, Mrs. J. M. Van der Linde, Mrs. R. W. McLean, Mrs. M. H. Poindexter, Mrs. R. D. Nierling, and Mrs. L. H. Reichert; alternates: Mrs. R. O. Goehl, Mrs. J. A. Sandmeyer, and Mrs. J. D. Craven. Mrs. E. O. Hieb moved that these members be accepted. Mrs. R. Ulmer seconded the motion. The motion carried.

Mrs. Smith announced that the fall board meeting will be held in Bismarck on Saturday, November 7, 1964, the date of the Quain and Ramstad clinical meeting.

The official delegate to the AMA convention, medical auxiliary, in San Francisco, June 21 to 25, will be Mrs. Clyde Smith. Mrs. R. D. Schoregge is a delegate and Mrs. J. D. Craven an alternate.

Mrs. Sushen Thakor moved that the meeting be adjourned. Mrs. R. D. Schoregge seconded the motion. The motion carried. The meeting was adjourned.

Mary E. Lommen, Recording Secretary

1964-65 Officers and Committee Chairmen

STATE OFFICERS

President: Mrs. Clyde Smith, 622 Raymond St., Bismarck

President-elect: Mrs. M. A. K. Lommen, 831 Griffin St., Bismarck

First vice-president. Mrs. Oliver S. Utthus, 916 W. Central, Minot

Second vice-president: Mrs. Edwin O. Hieb, 211 Hillcrest Dr. N.E., Jamestown

Recording secretary: Mrs. Robert Ulmer, 714 S. 19th Ave., Fargo

Corresponding secretary: Mrs. J. M. Knudsen, 1143 E. Coulee Rd., Bismarck

Treasurer: Mrs. Roger M. Berg, 219 W. Ave. B, Bismarck

COMMITTEE CHAIRMEN

Membership: Mrs. M. A. K. Lommen, 831 Griffin St., Bismarck

Program: Mrs. Oliver S. Utthus, 916 W. Central, Minot

Nominating. Mrs. Robert Hankins, Mott

Parliamentarian: Mrs. R. D. Schoregge, 621 Ave. F West, Bismarck

Liaison to SAMA. Mrs. T. H. Harwood, 2701 Belmont Rd., Grand Forks

Historian. Mrs. D. J. Halliday, Box 217, Kenmare

Bulletin: Mrs. George D. Holt, 214 Second Ave. S.W., Jamestown

AMA-ERF: Mrs. Edwin O. Hieb, 211 Hillcrest Dr. N.E., Jamestown

Health careers. Mrs. Sushen J. Thakor, 907 Griffin St., Bismarck

By-laws. Mrs. Carl London, 506 S. Main St., Minot

Publicity. Mrs. John A. Lambie, 2721 Chestnut, Grand Forks

Rural Health. Mrs. Herman J. Bertheau, Linton

Mental health. Mrs. Robert DeLano, Northwood

Legislation. Mrs. Robert Tudor, 714 W. Ave. C, Bismarck

Disaster preparedness. Mrs. Richard Zaner, 1111 S. 6th St., Fargo

International health activities: Mrs. Calvin Fercho, 1747 S. 7th St., Fargo

Safety: Mrs. A. C. Kohlmeyer, 1720 Third St. S., Moorhead, Minn.

Official publication: *News, Views and Cues*

Managing editor: Mrs. James H. Mahoney, 601 Eighth St., Devils Lake

District news editor: Mrs. Jens Sahl, 210 Ninth St., N.W., Minot

Business and circulation: Mrs. Jon V. Eylands, 710 W. Third St., Rugby

SPECIAL COMMITTEES

Reading: Mrs. Joseph Cleary, 104 Seminole Ave., Bismarck; Mrs. R. F. Nuessle, 815 Griffin St., Bismarck; Mrs. William Buckingham, 901 Parkview, Bismarck; Mrs. Phillip O. Dahl, 1127 W. Highland Acres Rd., Bismarck

Resolutions: Chairman to be appointed later by the Grand Forks convention committee

Nominations: Mrs. R. E. Hankins, Mott, chairman; Mrs. J. M. Van der Linde, 1016 Fourth Ave. N.E., Jamestown; Mrs. R. W. McLean, Hillsboro; Mrs. M. H. Poindexter, 1350 S. Ninth St., Fargo; Mrs. R. D. Nierling, 415 Ninth St. S.E., Jamestown; and Mrs. L. H. Reichert, 543 W. First Ave., Dickinson. Alternates: Mrs. R. O. Goehl, 1015 Reeves Dr., Grand Forks; Mrs. J. A. Sandmeyer, 1005 Lanark, Grand Forks; and Mrs. J. D. Craven, 915 W. Second Ave., Williston

Finance: Mrs. C. K. Fercho, 1747 S. Seventh St., Fargo, chairman; Mrs. Walter Hanewald, R.R. 1, Box 18, Dickinson; Mrs. Joseph D. Craven, 915 W. Second Ave., Williston; Mrs. Rodney G. Clark, 511 S. Eighteenth Ave., Grand Forks; and Mrs. Roger Berg, 219 W. Ave. B, Bismarck

Student loan: Mrs. Lee Christoferson, 1307 S. Sixth St., Fargo, chairman; Mrs. R. O. Goehl, 1015 Reeves Dr., Grand Forks; Mrs. M. H. Poindexter, 1350 S. Ninth St., Fargo; Mrs. James Moses, 1111 W. Highland Acres Rd., Bismarck; and Mrs. Paul J. Breslich, 818 Fourth St. S.E., Minot

Delegate to national convention, San Francisco, June 1964: Mrs. R. D. Schoregge, 621 Ave. F West, Bismarck; alternate Mrs. J. D. Craven, 915 W. Second Ave., Williston; presidential delegate: Mrs. Clyde Smith, 622 Raymond St., Bismarck

District Presidents—1964-65

First District—Mrs. George Ivers, 1106 S. Tenth St., Fargo

Second District—Mrs. Donald G. McIntyre, 126 W. Eleventh St., Rugby

Third District—Mrs. Charles Graham, 923 Almonte Ave., Grand Forks

Fourth District—Mrs. Carl B. London, 506 S. Main St., Minot

Fifth District—Members-at-large

Sixth District—Mrs. Ralph J. Dunnigan, 915 W. Ave. B., Bismarck

Seventh District—Mrs. R. D. Nierling, 415 S.E. Ninth, Jamestown

Eighth District—Mrs. A. K. Johnson, 1004 Fourth Ave. E., Williston

Ninth District—Mrs. Paul Ahlness, Bowman

Tenth District—Mrs. Carl Oja, Portland

District Councillors—1964-65

First District—Mrs. Calvin Fercho, 1747 S. Seventh St., Fargo

Second District—Mrs. Connor Corbett, 316 Seventh St., Devils Lake

Third District—Mrs. John Ruud, 2221 Chestnut, Grand Forks

Fourth District—Mrs. Paul Breslich, 818 Fourth St. S.E., Minot

Fifth District—Members-at-large

Sixth District—Mrs. R. F. Nuessle, 815 Griffin St., Bismarck

Seventh District—Mrs. G. H. Holt, 214 Second Ave. S.W., Jamestown

Eighth District—Mrs. Chester Borrud, 729 W. Sixteenth St., Williston

Ninth District—Mrs. Walter Hanewald, R.R. 1, Box 18, Dickinson

Tenth District—Mrs. R. W. McLean, Hillsboro

WOMAN'S AUXILIARY TO THE NORTH DAKOTA STATE MEDICAL ASSOCIATION 1964 MEMBERSHIP ROSTER

First District

Amidon, Mrs. B. F.	1701 Ninth St. S., Fargo
Baeheller, Mrs. Stephen C.	Enderlin
Barnard, Mrs. Donald M.	1212 S. 7th St., Fargo
Beithon, Mrs. Bruce	520 Eighth St., Wahpeton
Beithon, Mrs. E. J.	429 N. 5th St., Wahpeton
Blackwell, Mrs. Wm.	1730 S. 6th St., Fargo
Bond, Mrs. John H.	516 S. 13th St., Fargo
Borland, Mrs. V. G.	1514 S. 9th St., Fargo
Burton, Mrs. P. H.	415 S. 8th St., Fargo
Christoferson, Mrs. Lee A.	1307 S. 6th St., Fargo
Christu, Mrs. Chris N.	1509 S. 5th St., Fargo
Corbus, Mrs. Budd Clarke	1257 N. 4th St., Fargo
Darner, Mrs. C. B.	1211 N. 5th St., Fargo
Darrow, Mrs. Kent E.	716 S. 8th St., Fargo
De Cesare, Mrs. F. A.	1401 S. 9th St., Fargo
Dodds, Mrs. G. Alfred	1602 S. 10th St., Fargo
Ehlen, Mrs. Matt	94 22nd Ave. N., Fargo
Engstrom, Mrs. Perry	807 N. 2nd St., Wahpeton
Fercho, Mrs. Calvin K.	1747 S. 7th St., Fargo
Fjelde, Mrs. J. H.	1526 S. 8th St., Fargo
Fortin, Mrs. H. J.	1440 S. 8th St., Fargo
Geib, Mrs. Marvin J.	1219 S. 4th Ave., Moorhead, Minn.
Geston, Mrs. Robert	West Fargo
Gillam, Mrs. John S.	1433 S. 7th St., Fargo
Goff, Mrs. John R.	1441 S. 8th St., Fargo
Goltz, Mrs. Neill F.	804 S. 8th St., Fargo
Gustafson, Mrs. Maynard B.	Fargo
Hager, Mrs. Jerome P.	P. O. Box 70, Hankinson
Hall, Mrs. G. Howard	1748 S. 8th St., Fargo
Hamilton, Mrs. T. M.	River Oaks, Moorhead, Minn.
Hanna, Mrs. J. P.	907 S. 12th Ave., Fargo
Hawn, Mrs. Hugh W.	1325 N. 1st St., Fargo
Heilman, Mrs. Charles O.	49 N. 19th Ave., Fargo
Houghton, Mrs. James F.	1707 S. 9th St., Fargo
Hunter, Mrs. Cornelius M.	1434 S. 6th St., Fargo
Ivers, Mrs. George U.	1106 S. 10th St., Fargo
Ivers, Mrs. R. R.	809 S. 8th St., Fargo
Jaehning, Mrs. David G.	823 N. 3rd St., Wahpeton
Kavanaugh, Mrs. G. J.	1201 S. 6th St., Fargo
Kelly, Mrs. William	313 Black Bldg., Fargo
Kohlmeyer, Mrs. Albert	1720 S. 3rd St., Moorhead, Minn.
Lancaster, Mrs. W. E. G.	1332 N. 5th St., Fargo
Landa, Mrs. Marshall	1720 S. 8th St., Fargo
Lane, Mrs. Mark	521 Southwood Dr., Fargo
Larson, Mrs. G. Arthur	1538 S. 9th St., Fargo
Lawrence, Mrs. Donald H.	720 N. 7th St., Fargo
Le Bien, Mrs. Wayne E.	1353 N. 5th St., Fargo
Le Mar, Mrs. John D.	1324 N. 5th St., Fargo
Lewis, Mrs. T. H.	1502 S. 6th St., Fargo
Lindsay, Mrs. Douglas T.	1505 S. 11th St., Fargo
Long, Mrs. W. H.	1438 S. 8th St., Fargo
Lytle, Mrs. F. T.	1306 N. 1st St., Fargo
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Madison, Mrs. James	301 23rd Ave. N., Fargo
Magill, Mrs. Gordon B.	1312 S. 7th St., Fargo
Magness, Mrs. John W.	1711 S. 6th St., Fargo
Mazur, Mrs. Bernard A.	1237 N. 3rd St., Fargo
Melton, Mrs. Frank M.	1702 S. 7th St., Fargo
Miller, Mrs. J. W.	1436 S. 10th St., Fargo
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O'Hearn, Mrs. Jerome	89 29th Ave. N., Fargo
Owens, Mrs. W. F.	1845 18th St., Fargo

Poindexter, Mrs. Marlin H.	1350 S. 9th St., Fargo
Pray, Mrs. Lawrence G.	1701 S. 8th St., Fargo
Rogers, Mrs. R. G.	1621 S. 7th St., Fargo
Sedlak, Mrs. O. A.	1019 S. 9th St., Fargo
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Sessums, Mrs. John V., Jr.	1330 S. 18th Ave., Fargo
Shook, Mrs. Lester D.	1326 S. 8th St., Fargo
Story, Mrs. Robert D.	1312 S. 9th St., Fargo
Traynor, Mrs. Mack V.	1310 S. 9th St., Fargo
Triggs, Mrs. Perry O.	1402 S. 9th St., Fargo
Ulmer, Mrs. Robert	714 S. 19th Ave., Fargo
Webster, Mrs. William	801 Park Dr., Fargo
Wenz, Mrs. E. P.	1702 S. 13th St., Fargo
Wenzel, Mrs. J. B.	1101 28th Ave. S., Fargo
Weyers, Mrs. H. J.	1414 S. 6th St., Fargo
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Wold, Mrs. L. E.	1708 S. 9th St., Fargo
Zauner, Mrs. Richard J.	1701 7th St., Fargo

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Fawcett, Mrs. John C.	1125 5th St., Devils Lake
Fawcett, Mrs. Robert M.	12th Ave., Devils Lake
Fox, Mrs. William R.	320 E. 9th St., Rugby
Gilbertson, Mrs. E.	845 4th St., Devils Lake
Hillman, Mrs. L.	204 2½ Ave. S.E., Rugby
Hilts, Mrs. George H.	Cando
Johnson, Mrs. Christian G.	819 W. 3rd St., Rugby
Keller, Mrs. Emil T.	816 2nd Ave. S.W., Rugby
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Lazareck, Mrs. I. L.	1032 5th St., Devils Lake
Longmire, Mrs. L. T.	810 6th St., Devils Lake
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McBane, Mrs. Robert D.	1106 4th St., Devils Lake
McIntyre, Mrs. Donald G.	126 W. 11th St., Rugby
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Munro, Mrs. J. A.	Rolla
Palmer, Mrs. Dolson W.	Cando
Pine, Mrs. Louis F.	817 7th St., Devils Lake
Neuenschwander, Mrs. Roger	Rolla
Sawchuk, Mrs. John	Rolette
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Clayburgh, Mrs. B. J.	729 Reeves Dr., Grand Forks
Culmer, Mrs. A. E., Jr.	101 Reeves Court, Grand Forks
Dailey, Mrs. Walter C.	1812 Belmont Rd., Grand Forks
DeLano, Mrs. Robert	Northwood
Doss, Mrs. R. Douglas	9 E. Conklin Ave., Grand Forks
Evans, Mrs. Harold W.	1024 Reeves Dr., Grand Forks
Fritzell, Mrs. K. E.	1120 Cottonwood, Grand Forks
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Goehl, Mrs. Reinhold O.	1015 Reeves Dr., Grand Forks
Graham, Mrs. Charles M.	923 Almonte Ave., Grand Forks
Graham, Mrs. John H.	1125 Reeves Dr., Grand Forks
Grinnell, Mrs. Ernest L.	1207 Lincoln Dr., Grand Forks
Hamre, Mrs. Christopher J.	811 Letnes Dr., Grand Forks
Harwood, Mrs. T. H.	2704 Belmont Rd., Grand Forks
Haugen, Mrs. C. O.	Box 436, Larimore
Haunz, Mrs. Edgar A.	1029 Lincoln Dr., Grand Forks
Helenbolt, Mrs. Kenneth S.	2216 S. 10th St., Grand Forks
Helgason, Mrs. Norman M.	Cavalier
Helm, Mrs. Richard K.	1527 Chestnut Pl., Grand Forks
Jensen Mrs. August F.	1721 Belmont Rd., Grand Forks
Kaluzniak, Mrs. N. J.	Langdon
Keig, Mrs. William P.	501 17th Ave. S., Grand Forks
Lambie, Mrs. John A.	2721 Chestnut St., Grand Forks
Leigh, Mrs. James A.	606 N. 3rd St., E. Grand Forks, Minn.
Leigh, Mrs. Ralph E.	301 Park Ave., Grand Forks
Levine, Mrs. Leonard	1006 Cottonwood, Grand Forks
Liebeler, Mrs. Frances P.	1428½ S. 14th St., Grand Forks
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McLeod, Mrs. John J., Jr.	217 27th Ave. S., Grand Forks
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Sandmeyer, Mrs. John A.	1005 Lanark, Grand Forks
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Silverman, Mrs. Louis B.	6236 Belmont Rd., Grand Forks
Stratte, Mrs. J. J.	109 4th Ave. S., Grand Forks
Tarpley, Mrs. Harold I.	511 Reeves Dr., Grand Forks
Thorgrimsen, Mrs. G. G.	1615 4th Ave. N., Grand Forks
Tompkins, Mrs. C. R.	641 Kitson, Grafton
Vandergon, Mrs. Keith G.	2220 Cherry St., Grand Forks
Wilson, Mrs. George	510 18th Ave. S., Grand Forks
Witherstine, Mrs. W. H.	214 8th Ave. S., Grand Forks
Wontat, Mrs. Philip H.	1205 Lincoln Dr., Grand Forks
Youngs, Mrs. Nelson A.	500 River St., Grand Forks

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Boyum, Mrs. Lowell E.	Harvey
Breslich, Mrs. Paul J.	818 4th St. S.E., Minot
Briggs, Mrs. Brian E.	148 25th St. S.W., Minot
Cameron, Mrs. Angus L.	318 8th Ave. S.E., Minot
Cameron, Mrs. A. Malcolm	112 25th St. N.W., Minot
Dormont, Mrs. Richard E.	202 9th St. S.E., Minot
Fischer, Mrs. V. J.	303 8th Ave. S.E., Minot
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McCannel, Mrs. A. D. 115 8th St. S.E., Minot
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Olson, Mrs. Burton G. 629 3rd St. S.E., Minot
Peterson, Mrs. Myron D. 110 29th St. S.W., Minot
Richardson, Mrs. Gale 12 10th St. S.W., Minot
Rioux, Mrs. Berchmans 912 12th St. N.W., Minot
Sahl, Mrs. Jens 310 9th St. N.W., Minot
Shea, Mrs. Samuel 808 1st St. S.E., Minot
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Sorenson, Mrs. Roger 101 9th St. S.E., Minot
Uthus, Mrs. Oliver S. 916 Central W., Minot
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Wall, Mrs. Willard W. 919 3rd St. S.E., Minot
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Goeven, Mrs. J. 117 N.W. 3rd, Valley City
Jensen, Mrs. C. 117 N.W. 3rd, Valley City
Jensen, Mrs. W. R. 117 N.W. 3rd, Valley City
Klein, Mrs. C. 117 N.W. 3rd, Valley City

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Berg, Mrs. Roger M. 219 Ave. B. West, Bismarck
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Brink, Mrs. Norvel O. 212 Ave. F. West, Bismarck
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Dahl, Mrs. Phillip O. 1127 W. Highland Acres Rd., Bismarck
Daniolos, Mrs. D. 1200 Mandan St., Bismarck
Dunnigan, Mrs. Ralph J. 915 Ave. B. West, Bismarck
Eriksen, Mrs. Johan A. 815 Ave. C. West, Bismarck
Ewert, Mrs. Arthur O. Beulah
Fortman, Mrs. Albert H. 1923 Catherine Dr., Bismarck
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Girard, Mrs. Bernard A. 211 6th Ave. N.W., Mandan
Goodman, Mrs. E. Napoleon
Goughnour, Mrs. Myron W. 103 Ave. B. West, Bismarck
Gray, Mrs. Howard R. 1412 N. 17th St., Bismarck
Gregware, Mrs. Peter R. 1239 E. Highland Acres Rd., Bismarck
Hamilton, Mrs. Charles A. 1213 N. Washington St., Bismarck
Heffron, Mrs. M. M. 2033 N. 4th St., Bismarck
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Hetzler, Mrs. Arnold E. 602 6th Ave. N.W., Mandan
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Johnson, Mrs. Marlin J. E. 1020 N. Washington St., Bismarck
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Kling, Mrs. Robert R. 1414 Hanaford Ave., Bismarck
Klosterman, Mrs. P. F. 1529 N. 18th St., Bismarck
Knudsen, Mrs. J. M. 1143 E. Coulee Rd., Bismarck
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Larson, Mrs. Leonard W. 1227 N. 1st St., Bismarck
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Olson, Mrs. Robert J. 717 4th St., Bismarck
Orchard, Mrs. Welland J., Jr. Linton
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Peters, Mrs. Clifford H. 805 Griffin St., Bismarck
Pierson, Mrs. R. Warren 1209 Mandan St., Bismarck
Pitcher, Mrs. Wayne H. 118 E. Divide Ave., Bismarck
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Sauer, Mrs. John P. 202 E. Divide Ave., Bismarck
Saxvik, Mrs. Russell O. 1243 W. Highland Acres Rd., Bismarck
Schoregge, Mrs. Charles W. 507 6th St., Bismarck
Schoregge, Mrs. Robert D. 621 Ave. F West, Bismarck
Smeenk, Mrs. H. Pieter 920 Arthur Dr., Bismarck
Smith, Mrs. Clyde L. 622 Raymond St., Bismarck
Spielman, Mrs. George H. 1715 Ave. E East, Bismarck
Stangebye, Mrs. T. L. 1205 Prairie Dr., Bismarck
Thakor, Mrs. Sushen J. 907 Griffin St., Bismarck
Tudor, Mrs. Robert B. 714 Ave. C West, Bismarck
Vonnegut, Mrs. Felix J. Linton
Waldschmidt, Mrs. William D. 1243 E. Highland Acres Rd., Bismarck
Zukowsky, Mrs. Anthony Steele

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DuMais, Mrs. Alcid F. 404 2nd Ave. S.E., Jamestown
Elsworth, Mrs. John Nelson 215 14th Ave. N.E. Jamestown
Hieb, Mrs. Edwin O. 211 Hillcrest Dr., N.E., Jamestown
Hogan, Mrs. Clifford 303 10th Ave. N.E., Jamestown
Holt, Mrs. George H. 214 2nd Ave. S.W., Jamestown
Jansonius, Mrs. John 609 4th Ave. N.E., Jamestown
Jestadt, Mrs. John J. 419 15th St. N.E., Jamestown
Larson, Mrs. Ernest J. 321 2nd Ave. S.E., Jamestown
Lucy, Mrs. Robert 420 4th Ave. S.W., Jamestown
McFadden, Mrs. Robert L. 910 3rd Ave. N.W., Jamestown
Miles, Mrs. James V. 722 6th Ave. S.E., Jamestown
Nierling, Mrs. Richard D. 415 9th St. S.E., Jamestown
Nolan, Mrs. Robert B. 1706 5th Ave. N.E., Jamestown
Oster, Mrs. Ellis Ellendale
Pederson, Mrs. Thomas E. 416 4th Ave. N.E., Jamestown

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Schmidt, Mrs. Donald J.	205 1st Ave. W., Gackle
Sorkness, Mrs. Joseph	318 3rd Ave. S.E., Jamestown
Swafford, Mrs. G. R.	509 1st Ave. N., Jamestown
Swenson, Mrs. John A.	240 12th Ave. N.E., Jamestown
Van der Linde, Mrs. John	1016 4th Ave. N.E., Jamestown
Van Houten, Mrs. Richard	Oakes
Woodward, Mrs. Robert S.	602 4th Ave. S.E., Jamestown

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Craven, Mrs. John P.	409 3rd Ave. E., Williston
Craven, Mrs. Joseph D.	915 W. 2nd Ave., Williston
Ellis, Mrs. Gordon E.	1102 Main, Williston
Fennell, Mrs. William L.	Crosby
Hagan, Mrs. Edward J.	904 2nd Ave. E., Williston
Hagan, Mrs. Joan	724 1st Ave. E., Williston
Johnson, Mrs. Alan K.	1004 4th Ave. E., Williston
Korwin, Mrs. Justin J.	701 1st Ave. E., Williston
Lund, Mrs. Carrol M.	701 1st Ave. E., Williston
McPhail, Mrs. C. O.	Crosby
Olson, Mrs. J.	718 1st Ave. E., Williston
Olson, Mrs. R. J.	1240 8th Ave. W., Williston
Petty, Mrs. Charles R.	209 E. 14th, Williston
Skjei, Mrs. Donald E.	1224 4th Ave. E., Williston
Strinden, Mrs. Dean R.	1717 8th Ave. W., Williston
Walker, Mrs. H. Charles	718 1st Ave. E., Williston
Wiederanders, Mrs. Rex E.	401 5th Ave. W., Williston
Wright, Mrs. Willard A.	822 2nd Ave. E., Williston
Oliver, Mrs. D. C.	Watford City

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Dukart, Mrs. C. R.	208 4th Ave. W., Dickinson
Dukart, Mrs. Ralph J.	S.W. of City, Dickinson
Foster, Mrs. Keith G.	734 8th Ave. W., Dickinson
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Guloien, Mrs. Hans E.	41 5th Ave. W., Dickinson
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Hankins, Mrs. Robert F	Mott
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Hlavinka, Mrs. D. J.	Mott
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Nachtwey, Mrs. A. P.	115 5th Ave. W., Dickinson
Ordahl, Mrs. Norman B.	N.W. of City, Dickinson
Raasch, Mrs. Richard F.	30 W. 8th St., Dickinson
Reichert, Mrs. Donald J.	1019 5th Ave. W., Dickinson
Reichert, Mrs. Lawrence H.	543 1st Ave. W., Dickinson
Rodgers, Mrs. R. W.	146 W. 6th St., Dickinson
Skwarok, Mrs. Walter	Hebron
Slominski, Mrs. Henry F.	Richardton
Smith, Mrs. Oscar M.	519 1st Ave. W. Dickinson
Spear, Mrs. A. E.	610 1st Ave. W., Dickinson
Thom, Mrs. Robert	Bowman

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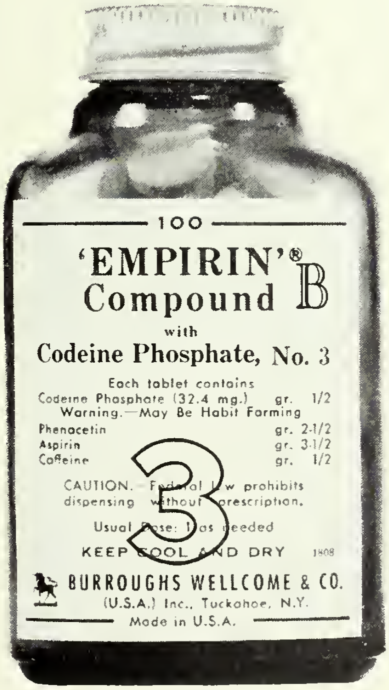

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Book Reviews . . .

The Psychological Aspects of Diabetes or How To Live in Emotional Balance with Diabetes

by HAROLD GEIST, *81 pp., ill., Charles C Thomas, Springfield, Ill., 1964. $4.75*

As with any chronic, lifelong, incurable disease, diabetes mellitus is no exception to the maxim that psychiatric evaluation, psychotherapy, and organotherapy constitute an inseparable triad requisite to successful management. Physicians in general are obviously aware of this triad, but it has long been an established fact that what is accepted in theory is all too often not fully inplemented in practice. This is what the author emphasizes by implication.

The general tenor of the text represents a sort of compromised journalistic endeavor which is certainly too elementary for the physician and yet too sophisticated reading for the diabetic himself insofar as the medical aspects are concerned. This same criticism holds true for a number of other so-called "primers" and diabetes "manuals" recently published. At times the style is somewhat perfunctory as evidenced by simple grammatical errors. In the latter half of the book a contradiction appears wherein the author reports that "the greater the recommended insulin dosage per unit of body weight the more independent the child appears." In the next paragraph he states: "The greater the insulin dosage per body weight the more the diabetic child feels dependent."

The author places major emphasis on the juvenile diabetic whose emotional adjustment and acceptance of the disease are certainly more difficult to achieve than is the case with adult diabetics.

Notwithstanding these few critical comments, this little monograph belongs on the bookshelf of those physicians who see limited numbers of diabetics or who may, under the daily pressure of heavy patient loads, fall somewhat short of executing a comprehensive treatment program.

EDGAR A. HAUNZ, M.D.
Grand Forks

The Medical Writings of Moses Maimonides. Vol. I: Treatise on Asthma

edited by SUESSMAN MUNTNER, *115 pp., J. B. Lippincott Co., Philadelphia, 1963. $5*

This book concerning asthma was written almost eight hundred years ago and has recently been translated into English. Although it would be a sad commentary upon medical progress if this book were to be used as a handbook of treatment by the busy modern physician, one is struck, nevertheless, by the enduring truths which are scattered among its pages. A bit of patience in wading through the polypharmacy of the time and the pathological physiology based upon the Galenic theory of humors will be rewarded by a renewed appreciation of how much can be learned by combining astute observation with Aristotelian reasoning.

The spirit of Maimonides is best expressed by using his own words: ". . . this disease has many etiological aspects and should be treated according to the various causes that bring it about. Physicians are well aware that

(Continued on page 18A)

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(Continued from page 14A)

this disease cannot be managed successfully without a full knowledge of the patient's constitution as a whole and of his individual organs. . . . Then should be considered his age and habits as well as the season of the year. . . . I have no magic cure to report. . . . Your Highness has already confided in me that the air of Alexandria is harmful to you and whenever you fear an attack of the illness you prefer to move to Cairo where the air is much dryer and calmer, making the attack more tolerable for you. . . . It is well known that clean, fresh air free of any contamination is advisable for all people, whether healthy or sick. . . . mere diet and medical treatment cannot fully cure this disorder. . . . Let Your Highness occupy himself with things useful and keep away from things useless and may God show you the path of truth. . . . Sleep in this disease is rather harmful, especially during an attack. . . . medicine alone is not the only factor in a cure but medicine and nature combined. . . . Training in this art implies most often a combination of practice and theory. . . . the physician should not treat the disease but the patient who is suffering from it. . . . the best medical treatment is assured by use of the collegium."

This work of Maimonides is deserving of a place in medical libraries in general and in the personal library of those physicians who have a special interest in medical history. The reason for this is not so much that Maimonides was an originator of medical ideas but that he was a transmitter of thought from ancient Greece via his own Saracen-Judean civilization (the best of the Middle Ages) to that of the western European Renaissance.

IRVING H. ITKIN, M.D.
Denver

What is Sportsmedicine?

by ERNEST JOKL, *86 pp., ill., Charles C Thomas, Springfield, Ill., 1964. $4.75*

This is a monograph in which the author attempts to bring into the present time various past views of many authors. According to the author, it is an outline of sportsmedicine and classifies the subjects in accordance to a threefold differentiation of applied physiology, sports-surgery, and clinical medicine.

I found it a very hard book to read. It was difficult to concentrate on the many subject matters under discussion. The first part of the monograph is a review and a summary of sportsmedicine. The second part is a clinical evaluation of the literature and the outline of the curriculum of sportsmedicine. The historical account, as described in this book by the various authors, has an historical account of sportsmedicine in Europe. Unfortunately there is little coordination between the authors in regard to their thoughts.

The final section of the book on *The University of Kentucky Outline of Sportsmedicine* is probably the most valuable part of the entire book, but this does not give a detailed discussion on how to apply sportsmedicine to the present athlete.

Except for the lengthy bibliography on history of sportsmedicine, the book would be of little value to the doctor or trainer interested in reading it for aid of the modern athlete.

E. N. NELSON, M.D.
Minneapolis

(Continued on page 20A)

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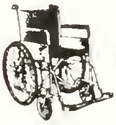

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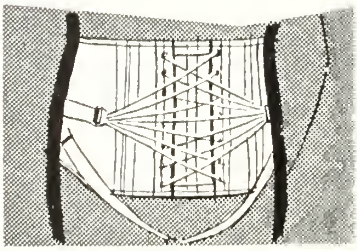

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FREE PARKING

(Continued from page 18A)

The Management of Internal Derangements of the Knee

by ARTHUR J. HELFET, *230 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $12*

In his discussion in his book of *The Management of Internal Derangements of the Knee*, Dr. Helfet delves into a new aspect of the anatomy of the knee joint, with the knowledge and explanation of the rotation which occurs in flexion and extension. This, then, helps to explain some of our problems concerning the injuries sustained with certain types of trauma to the knee joint. The presentation of the diagnostic signs of knee pathology is plain and clear and of great value to anyone practicing medicine or surgery who comes in contact with injuries or diseases of the knee. I particularly enjoyed the visual educational approach of Dr. Helfet in his step-by-step procedures in diagnosis and treatment and his enlightening photographs of pathology of the knee joint. The approach certainly is complete in all respects. The book can be summarized as being a complete, accurate, enlightening, and practical guide for a teacher or a practioner in the art of medicine. It is a book which would fit well on the shelf of any doctor's office, hospital, or medical school.

WILLIAM E. PROFFITT, M.D.
Minneapolis

NEW BOOKS RECEIVED

Early Treatment of Facial Injuries by THOMAS JOHN ZAYDON and JAMES BARRETT BROWN, 258 pp., ill., Lea & Febiger, Philadelphia, 1964. $15

Diagnosis in Clinical Obstetrics by G. GORDON LENNOX, 336 pp., ill., Williams & Wilkins Co., Baltimore, 1962. $9

Doctor and Patient and the Law by C. JOSEPH STETLER and ALAN R. MORITZ, 4th ed., 529 pp., C. V. Mosby Co., St. Louis, 1962. $14.75

Anatomy in Surgery by PHILIP THOREK, 2nd ed., 904 pp., ill., J. B. Lippincott Co., Philadelphia, 1962. $22.50

Examination and Diagnosis of the Spine and Extremities by BECKETT HOWORTH, 178 pp., ill., Charles C Thomas, Publisher, Springfield, Ill., 1962. $10.50

First International Conference on Congenital Malformations: Papers and Discussions Presented at the First International Conference on Congenital Malformations, London, England, July 18-22, 1960, compiled and edited for THE INTERNATIONAL MEDICAL CONGRESS LTD., 314 pp., ill., J. B. Lippincott Co., Philadelphia, 1961. $7.50

(Continued on page 22A)

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References: 1. Baker, A. G.: Penn. Med. J. *63*:697 (May) 1960. 2. Smith, R. T.: New York Med. (Aug. 20) 1952, pp. 16-19. 3. Smith, R. T.: Med. Clin. N. Amer. (Mar.) 1957. 4. Lehrer, H. W.; Lehrer, H. G., and Lehrer, D. R.: Northw. Med. (Nov.) 1955. 5. Sforzolini, G. S.: Arch. Ophthal. *62*:381 (Sept.) 1959. 6. Gile, J. H.: W. Virginia Med. J. *59*:120-122 (May) 1963.

(Continued from page 20A)

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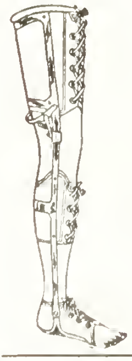

An Introduction to Comparative Pathology by G. A. GRESHAM and A. R. JENNINGS, 412 pp., ill., Academic Press, New York, 1962. $13

Practical Electro-cardiography by HENRY J. L. MARRIOTT, 3rd ed., 274 pp., ill., Williams & Wilkins Co., Baltimore, 1962. $5.50

Patient Care and Special Procedures in X-Ray Technology by CAROL HOCKING VENNES and JOHN C. WATSON, 2nd ed., 228 pp., ill., C. V. Mosby Co., St. Louis, 1964. $6.25

Planning and Operating Facilities for Crippled Children by W. B. SCHOENBOHM, 311 pp., ill., Charles C Thomas, Publisher, Springfield, Ill., 1962. $11.50

Lysosomes: Ciba Foundation Symposium edited by A. V. S. DE REUCK and MARGARET P. CAMERON, 446 pp., ill., Little, Brown & Co., Boston, 1963. $11.50

Techniques in Medical Communication by WARNER F. BOWERS, 88 pp., ill., Charles C Thomas, Publisher, Springfield, Ill., 1963. $4.50

Medical Parasitology: A Basic Systems Program by PHILIP O. NICE, JOAN A. O'CONNELL, and CARLA A. SYKES, 325 pp., ill., Appleton-Century-Crofts, New York, 1964. $7.95

Clinical Orthopaedics and Related Research. No. 29: Vascular Repair and Salvage of Traumatized Extremities edited by ANTHONY F. DE PALMA, 281 pp., ill., J. B. Lippincott Co., Philadelphia, 1963. $8

The Specificity of Serological Reactions by KARL LANDSTEINER, 330 pp., ill., Dover Publications, Inc., New York, 1962. $2

The Second Career: With Other Essays and Addresses by WILDER PENFIELD, 189 pp., Little, Brown & Co., Boston, 1963. $5

Human Sex and Sex Education: Perspectives and Problems by WARREN R. JOHNSON, 205 pp., Lea & Febiger, Philadelphia, 1963. $4.50

Medical Department, U. S. Army: Personnel in World War II edited by COLONEL JOHN BOYD COATES, JR., editor-in-chief, U. S. Army Medical Service; by JOHN H. MCMINN and MAX LEVIN, 548 pp., ill., U. S. Government Printing Office, Washington, D. C., 1963. $6

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News Briefs . . .

NORTH DAKOTA fall medical meetings include the annual meeting of the Mental Health Association and the North Dakota Psychiatric Association to be held in Jamestown, Nov. 6 and 7. The Quain and Ramstad Fall Clinical Conference will be held in Bismarck, Nov. 7. The North Dakota Coordinating Council of Agencies for Handicapped Persons is scheduled for Nov. 9 at The Heartview Alcoholism Foundation, Mandan, and the North Dakota Chapter, American Academy of General Practice will convene at Grand Forks, Nov. 20 and 21.

° ° ° °

DR. DALE C. KANA, with the Grafton Clinic for four years, has assumed the practice of Dr. Richard J. Zauner, Fargo, who is taking a residency in radiology at the University of Oregon, Portland. Dr. Kana was born in Grand Forks, graduated from the University of North Dakota, and received his M.D. degree from the University of Kansas, Kansas City. He interned at St. John's Hospital in Fargo.

° ° ° °

DR. WILLARD A. WRIGHT of Williston is chairman of the first national conference on area-wide health facilities planning. Sponsored by the American Medical Association's Council on Medical Services, the meeting is set for Nov. 28 and 29 in Bal Harbour, Fla.

° ° ° °

DR. ROBERT C. EELKEMA, formerly with the Omaha, Neb., city health department, has been named student health physician at the University of North Dakota, replacing Dr. Eugene Carpenter now practicing in Valley City. Dr. Eelkema received a D.V.M. degree from the University of Minnesota in 1956 and practiced veterinary medicine at Valley City for one year. He then attended the UND School of Medicine and received an M.D. degree in 1961 from University of Washington School of Medicine, Seattle.

Minnesota

DR. R. K. SCHWARTZ has joined Drs. Carl R. Heinzerling and R. D. Pistulka in Chaska. After obtaining his M.D. degree at Creighton University, Omaha, and completing his internship, he had a year's residency in internal medicine.

° ° ° °

DR. BRUCE GERSTENKORN, a general practitioner, has joined the Keith Clinic in Milaca. Born in Belgrade, Minn., he took undergraduate studies at St. Olaf College and received his M.D. degree from the University of Minnesota. At Minnesota he received the Minnesota State Medical Association's Rural Scholarship for four years. Dr. Gerstenkorn interned at Ancker Hospital, St. Paul.

° ° ° °

DR. EDWARD C. ROSENOW, JR., of the University of Pennsylvania, has been elected president of the Alumni Association of the Mayo Graduate School of Medicine,

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University of Minnesota. His election marks the first time a man reared in Rochester has held the position. He was a fellow from 1936 to 1940. His father headed the Mayo Clinic's section of experimental biology from 1915 until retirement in 1944. Dr. Rosenow, now executive director of the American College of Physicians, was graduated from Harvard Medical School in 1935.

* * * *

DR. PETER LEONARDSON, a general practitioner, has joined Dr. Vincent Hunt at the Red Lake Falls Clinic. Dr. Leonardson practiced at Babbitt for the past three years. He is a 1960 graduate of the University of Illinois College of Medicine, Chicago, and he interned with Dr. Hunt at Bethesda Lutheran Hospital in St. Paul.

* * * *

DR. HOWARD H. WONG, a native of Minneapolis, has joined the staff of the East Range Clinic in Virginia as obstetrician and gynecologist. After graduation from the University of Minnesota Medical School in 1956, he interned at Mercy Hospital, Toledo, and served a three-year residency there. For the past four years he has been chief medical officer in obstetrics and gynecology with the Air Force in Europe.

* * * *

DR. VINCENT R. HUNT has opened offices in the Red Lake Falls Clinic building. His staff includes a laboratory technician, registered nurse, practical nurse, and office assistant.

* * * *

DR. ROBERT L. CUSHING is now associated with Dr. Alvin C. Peterson of the Peterson Clinic, Mora. After receiving his medical degree from the University of Omaha in 1939, he served six years in the Army. He was in general practice in Brainerd for thirteen years; he then took a four-year residency in pathology at Veterans Administration Hospital, Palo Alto. He continued to practice there until 1963, when he returned to the Midwest.

* * * *

DR. THEODORE P. MYERS has joined the Albert Lea Clinic after four years' Army service. A native of Sheldon, Iowa, he received his medical degree from State University of Iowa in 1959.

* * * *

DR. WILLIAM B. CASTLE, professor of medicine, Harvard University gave the first Paul S. Hagen Memorial Lecture on Friday, October 9, at Minneapolis Veterans Hospital auditorium. He discussed metabolism of vitamin B_{12} and pernicious anemia.

* * * *

DR. DUANE J. DAVIDSON has joined the staff of the Thief River Clinic, Thief River Falls. He received his medical degree from Loma Linda University, California, and served with the U.S. Public Health Service for three years. He was a general practitioner in McMinnville, Tenn., for two years and recently completed a surgical residency at Beckley, W. Va.

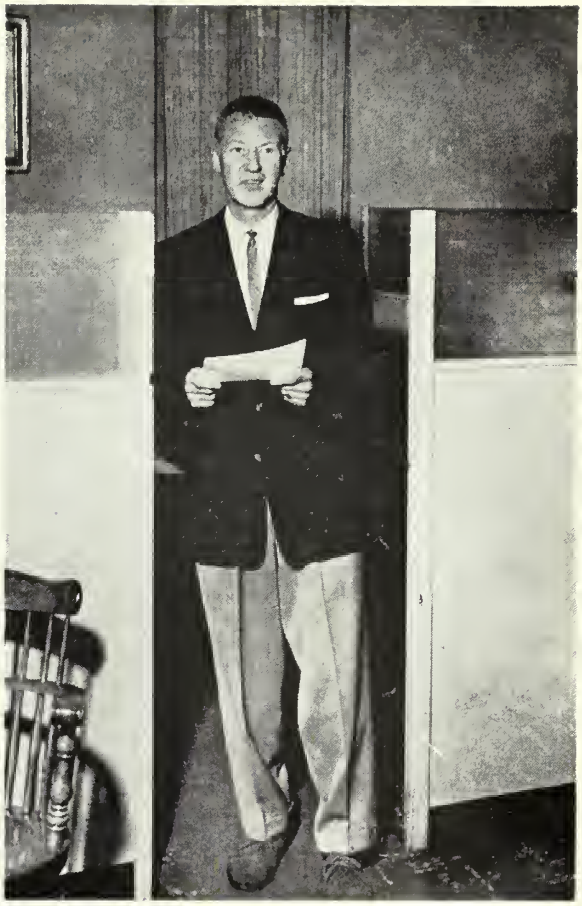
* * * *

DR. RICHARD T. OLSON has joined the Mesaba Clinic in Chisholm. A native of Duluth, he received his medical degree from the University of Minnesota in 1963 and interned at Santa Clara County Hospital, San Jose, Calif., where he was named intern of the year.

* * * *

DR. GEORGE R. MC NEAR has opened a general practice at Heron Lake. A member of the Mankato Clinic for the

(Continued on page 26A)



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NEWS BRIEFS

(Continued from page 25A)

past eleven years, he received his medical degree from Cornell University. He interned at New York Lying-in Hospital and was chief resident for two years. He is a veteran of World War II and the Korean war.

* * *

DR. BYRON L. JOHN has begun pediatric practice in St. Cloud in association with Dr. Stephen D. Sommers. A native of Terre Haute, Ind., he received his medical degree from Indiana University. During Navy service, he was on the pediatric staff of the Naval Air Station at Patuxent River, Md.

South Dakota

DR. RICHARD T. MAXWELL has closed his practice in Clear Lake after serving the community and surrounding area for twenty-six years. Efforts are under way to secure another doctor for Clear Lake and its 23-bed hospital.

* * *

DR. JEROME A. ECKRICH, JR., urologist, has begun practice in Aberdeen, sharing office space with his father, Dr. Jerome A. Eckrich, Sr., a general practitioner. Dr. Eckrich, Jr. was born in Aberdeen, took undergraduate work at the University of Minnesota, and received his M.D. degree from Marquette University, Milwaukee, in 1958. He interned while in the army at Tripler Army Hospital, Honolulu, and served a general surgery residency at Ireland Army Hospital, Ft. Knox, Ky. He specialized in urology during a three-year residency at the Veterans Administration Hospital in Milwaukee.

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Deaths . . .

DR. WALTER E. HATCH, 81, died Sept. 16 in a Duluth hospital. He was a prominent Duluth physician for more than forty years, holding several important posts in medical societies in the state. President Franklin Roosevelt cited him for his part on the Duluth Selective Service Board during World War II. Dr. Hatch obtained his M.D. degree from Northwestern University, Chicago, and interned for two years at Mercy Hospital in Chicago. From 1909 to 1917, he practiced in Superior, Wis., and was city chemist. After brief service in World War I, he went to Duluth in 1918. He took time off in 1922 for postgraduate studies in urology at Tulane University. He was certified by the American Board of Urology, member of the American Urological Association, and past president of the Twin City Urological Society. During his years in Duluth, he was urologist at St. Mary's, St. Luke's, and Miller Memorial hospitals. He also was a urological consultant at the Middle River Sanitorium, Wis. Dr. Hatch was a director of the Duluth Venereal Disease Clinic, a fellow of the Academy International of Medicine, past president of the Inter-Urban Academy of Medicine, past president of the St. Louis County Medical Society, and member of the Minnesota and American Medical associations.

* * * *

DR. ALEXANDER M. WATSON, 80, who opened practice in Royalton, Minn., in 1905, died Aug. 28. He had been retired since 1961. Born in Quebec, he graduated from the University of Western Ontario. Among survivors are two sons, Dr. Sidney W. Watson of Royalton and Dr. Robert M. Watson of Morris, Minn. Dr. Watson was Royalton mayor for ten years and on the staff of St. Gabriel's Hospital in Little Falls, Minn., for thirty-eight years. He was a member of the American Medical Association, the Minnesota State Medical Association, and the American Academy of General Practice.

* * * *

DR. HARRY A. JOHNSON, 62, died Aug. 23. He had lived in Edina, Minn., since 1930, and had practiced in Minneapolis since 1928. Dr. Johnson was a graduate of Gustavus Adolphus College, St. Peter, Minn., and the University of Minnesota Medical School. He was on the staff of St. Barnabas and North Memorial hospitals and former chief of staff at St. Andrew's Hospital. Dr. Johnson was a member of the American Medical Association, Minnesota State Medical Association, Hennepin County Medical Society, President's Council of Gustavus Adolphus College, University of Minnesota Alumni Association, and Parents Association of Carleton College, Northfield.

* * * *

DR. CHARLES W. FOGARTY, who practiced medicine in St. Paul for more than fifty years, died Sept. 17 at the age of 86. He was born in Minneapolis and received his M.D. degree from Jefferson Medical College of Philadelphia in 1903, followed by postgraduate work at the University of Vienna. Dr. Fogarty was a former chief of staff of St. Joseph's Hospital in St. Paul and, with the late Dr. William C. Carroll, founded the St. Paul Clinic. Dr. Fogarty was a member of the American Medical Association, the Minnesota State Medical Association, and the American Academy of Ophthalmology and Otolaryngology and was fellow of the American College of Surgeons.

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COMING *in January*

Articles and features to be found in the next issue of THE JOURNAL-LANCET

In January the editors will present the first in a series of special issues devoted to the field of pediatrics. The series is under the general guidance and development of Dr. John A. Anderson, chief of the Department of Pediatrics, University of Minnesota, and a member of the editorial board of THE JOURNAL-LANCET.

The first issue in the series is from the State University of Iowa and is representative of those to follow, in that an appropriate balance of clinical research and basic research subjects will be presented. This issue is guest edited by Dr. Donal Dunphy, professor and chairman, Department of Pediatrics.

THE JOURNAL-LANCET, during its ninety-six years, has striven to be an effective instrument for the communication of the broad aspects of medical knowledge directed primarly to the practicing physician and specialist in the central part of the United States and Canada.

From time to time the editors have developed and presented special issues devoted to selected medical subjects. Because of the enthusiastic response from readers, the editors are encouraged to continue these efforts.

In addition to the January issue from Iowa, other pediatrics issues are planned to appear during 1965 and 1966 from Marquette University, the University of Oklahoma, the University of Arkansas, the University of Nebraska, and the University of Manitoba.

The contents for January will include the following papers:

- **An Objective Study of Psychological Factors in Ulcerative Colitis in Children,** by Theron Alexander, Ph.D., Iowa City.
- **Ataxia in Childhood,** by William E. Bell, M.D., Iowa City.
- **The Epidemiology of Leukemia,** by William L. Jackson, M.D., Iowa City.
- **Auditory Reactions of the Neonate,** by Gerald Solomons, M.D., James C. Hardy, Ph.D., and Jay Melrose, Ph.D., Iowa City.
- **Thrice Recurrent High Intestinal Obstruction in the Newborn,** by Robert T. Soper, M.D., and James C. Taylor, M.D., Iowa City.
- **Genetic Aspects of Achondroplasia,** by Hans Zellweger, M.D., Iowa City, and Bruce Taylor, M.D., Des Moines.
- **Management of Diabetes in Children,** by Charles H. Read, M.D., Iowa City.
- **Polyuria,** by Carl E. Nelsen, M.D., Iowa City.

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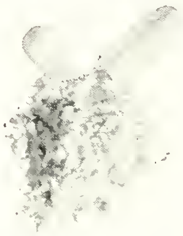

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1. Sweeney, W. M.; Dornbush, A. C., and Hardy, S. M.: Demethylchlortetracycline and Tetracycline Compared. Relative *in vitro* Activity and Comparative Serum Concentrations During 7 Days of Continuous Therapy. *Amer. J. Med. Sci.* 243:296 (Mar.) 1962.

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SERVING THE MEDICAL PROFESSION OF MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA, AND MONTANA

Newer Perspectives in Diabetes with Comments on Synthetic Insulin and Oral Agents

THOMAS P. SHARKEY, M.D.
Dayton, Ohio

WE ARE living in an exciting era in the history of diabetes. During the last few years many discoveries are slowly but surely fitting together the pieces of the metabolic disorder, diabetes mellitus. The future promises even more, with the hope that the cause or causes of the disorder will be found, its prevention predicted, and its cure made tangible. Newly revised figures of the American Diabetes Association[1] indicate that 3,400,000 persons in the United States have diabetes. Of this total, 2,000,000 are known to have the condition. From this vast experience it is apparent that the true incidence of diabetes has been underestimated. One of every 55 persons has diabetes, approximately 5,500,000 had potential diabetes as of 1964, and new annual known cases number 75,000. The majority of patients are past 40 years of age. Only about 1 in 2,500 children up to the age of 15 has the disease.[2]

FACTORS ASSOCIATED WITH DIABETES

Heredity. Since diabetes is considered a hereditary condition, a history of the condition should stimulate a thorough investigation of all members of the patient's family. Steinberg[3] estimates that 60 to 90% of those genetically susceptible are not discovered by present routine methods of examination. In light of our knowledge, the first chemical evidence, even by the most sensitive methods, must be considered a late manifestation of the disorder. Need for further research and methods of earlier detection is obvious.

Diabetes detection. In 1948 the American Diabetes Association developed the National Diabetes Detection Program. Its basis is the testing of urine and blood for glucose after a meal of prescribed carbohydrate. It was recognized that glucose in the urine or elevated blood glucose in the fasting state is a late sign of the disorder. The person with a mild condition might have glucose-free urine or normal blood glucose in the fasting state. The same individual might have glucosuria or elevated blood glucose after a meal of 100 gm. of carbohydrate or glucose load.

The glucose tolerance test, when done under certain standard conditions, is probably the most reliable method for diagnosis of asymptomatic or an early stage of diabetes and is used when blood glucose levels are borderline after food or a glucose load. Technique includes giving 1.75 gm. of glucose per kilogram of ideal body weight

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in a fasting state, calculated from the patient's height and age, and after a prescribed diet of 300 gm. of carbohydrate daily for at least three days before the test. Recently the rapid intravenous glucose tolerance test, the intravenous tolbutamide test, and the oral tolbutamide test were added to our armamentarium, but no definite evidence proves that they are superior to the standard glucose tolerance test in early diagnosis. Hypoglycemic blood glucose levels after a glucose tolerance test require further studies, since diabetes eventually develops in some individuals with hypoglycemic blood levels.[4]

In 1948 Conn and associates[5] reported for the first time that administration of ACTH to healthy individuals for a five- to ten-day period produced temporary diabetes which disappeared when the steroid was withdrawn. As a result of these studies, Conn[6,7] evolved the basis for the cortisone-glucose tolerance test, which is performed by administering 50 mg. of cortisone acetate orally eight and one-half hours and two hours preceding the standard glucose tolerance test in an individual weighing less than 160 lb., and 62.5 mg. of cortisone acetate at these times if weight is more than 160 lb. Cortisone increases the demand for insulin, thereby revealing weaknesses in the insulin response earlier. The cortisone-glucose tolerance test[7] revealed an increased number of positive responses in nondiabetic relatives of those with diabetes, in those with probable diabetes as manifested by the standard glucose tolerance test, in the older group, and in the obese patient with diabetes whose glucose tolerance test returned to normal after weight reduction. Fifteen[7] of 57 nondiabetic relatives with an initial positive response had diabetes in a period of seven years. A positive response also is high in pregnant women and in older age groups, significance of which is uncertain. None of these procedures diagnoses diabetes in the prediabetic period. They make earlier diagnosis only in the subclinical, latent, or so-called potential case.

Prediabetes. The prediabetic period defined by Conn and Fajans[7] is that when one "can detect an early abnormality which precedes and is not dependent upon insufficient insulin activity." They emphasize that no current biochemical tests can identify with certainty an individual believed to be in the prediabetic state. "Prediabetes" should not be used as a clinical diagnosis; it is not synonymous with such terms as "latent" or "potential" diabetes in which slight diminution of carbohydrate tolerance may be found after glucose loading tests. Conn and Fajans[7] stated that diabetes is genetically determined, and in whatever way the genetic determinant eventually brings about evidence of deficient insulin activity, the basic abnormality is present since conception. The prediabetic state implies undiscovered metabolic derangements which lead eventually to insufficient insulin activity and may give rise to aberrations in vascular and nervous tissue fabric which characterize the diabetic syndrome.

The best evidence of the prediabetic state is the retrospective study of apparently healthy pregnant women. The birth weight of an infant of a diabetic mother exceeds the expected normal weight for a similar period of gestation in the majority of instances. Retrospective studies by Kriss and Futcher[8] revealed that the apparently healthy mother who delivered an infant weighing between 10 and 11 lb. was highly susceptible to diabetes. Diabetes eventually develops in 77% in an average period of twenty-four years. Certain conditions during pregnancy in an apparently healthy individual, such as perinatal losses, previable losses, toxemia, and hydramnios, are suspicious so-called diabetic traits. Fetal abnormalities, such as macrosomia in the absence of erythroblastosis, extramedullary hematopoiesis in the absence of an Rh incompatibility, hypertrophy and/or hyperplasia of the islet cells, and congenital anomalies, are clues to possible maternal prediabetes.

Many authors feel that pregnancy is diabetogenic and that asymptomatic hyperglycemia, even with a return to normal values postpartum, may be indicative of maternal prediabetes. In a study five and one-half years postpartum of 137 women with abnormal glucose tolerance tests during pregnancy, O'Sullivan[9] found that diabetes developed in 28.5%. The genetic aberration likely affects many tissues of the body and is active from conception. The prediabetic period has long been considered to be adynamic, but recent research indicates activity in certain metabolic parameters.

NEW PARAMETERS OF PREDIABETES

Insulin-like activity. Many authors recently have shown evidence of increased insulin-like activity in the serum of individuals with prediabetes, both in the fasting state and after glucose loads. Most recently, Steinke and associates[10] in a study of 40 children with diabetic parents and 2 identical twins whose twins had diabetes found increased insulin-like activity of the serum in a fasting state and after rapid glucose infusion. In prediabetes after rapid infusion of glucose, no change was noted in the insulin-like activity of the serum until sixty minutes, when it was 180% above base line. In normal subjects, rapid glucose infusion consistently induced significant increase of insulin-like activity ten to twenty minutes after injection, with return to base line activity within sixty minutes.

Insulin antagonists. Antoniades and associates[11] found that in the fasting state in persons with and without diabetes, the predominant form of insulin in blood sera is in the complexed form. After glucose infusion, the rate of dissociation of the complexes was much slower in diabetic than in nondiabetic persons. Insulin antagonists in the blood which interfere with action of insulin have been demonstrated. These substances are probably not hormones. The 2 forms of insulin in the blood,[12] free insulin and inactive insulin complex, differ in physicochemical, biologic, and immunologic properties. This balance is regulated by the metabolic state of the individual. Lack of utilization of the insulin complexes in those with diabetes may result from malfunction of the dissociation mechanism of these complexes.

Ensinck and associates[13] reported evidence, after parenteral administration of insulin I^{131} to humans, to show that degradation products of insulin in serum are the A and B components of the insulin molecule. They concluded that degraded insulin metabolites are transported as components in serum in which only the B chain is protein-bound. The intracellular hepatic enzyme insulin glutathione transhydrogenase, extracted from rat or beef liver, catalyzes the scission of incubated insulin into its constituent A and B chains. Ensinck and Vallance-Owen[14] suggested that the B chain may be the synalbumin antagonist, and that the antagonism of insulin may occur at the cell membrane by direct competition for insulin-binding sites by a part of the insulin molecule. Tomizawa and Varandani of the Fels Institute reported April 16, 1964, in a paper given at the Federation of the American Society for Experimental Biology, that they had for the first time isolated insulin glutathione transhydrogenase from human liver.* Vallance-Owen and Ashton[15] have shown that plasma albumin from patients with essential diabetes and prediabetes has more antagonism to insulin than that from normal subjects. They feel that the antagonism is not due to the albumin itself but to some substance associated with it, hence the term "synalbumin." They studied the genetic transmission of diabetes by examining the relatives of diabetic patients. In 4 families among 28 consanguineous relatives found to have excessive synalbumin antagonism, only 6 had overt carbohydrate intolerance, 2 had recurrent spontaneous hypoglycemia, and the remainder were asymptomatic. They concluded that overt carbohydrate intolerance is a late event in many constituted as essentially diabetic persons.

Presence of insulin antagonists in the sera of patients with diabetes has been described by many authors, but not all research men have been able to duplicate the findings of Ensinck and associates or of Vallance-Owen and Ashton. Other unidentified insulin antagonists or inhibitors may exist, and further studies are necessary. Relationship of insulin antagonists to the etiology of diabetes is not known, and whether they are the cause or effect remains to be seen. The genetic defect could be one affecting enzyme systems involving some aspect of the polypeptide synthesis of insulin (insulinogenesis) or other enzyme systems which affect vascular or nervous tissue structure or which fabricate insulin antagonists. Continuing advancement in studies of genetic biochemistry and of the deoxyribonucleic acid code may some day establish the genetic defect in diabetes and clarify these points. It may be possible some day to modify the expression of the genetic information and prevent transmission of diabetes. Now that the synthesis of insulin has been achieved, it may be possible to study this problem from another vantage point by changing the molecular structure of insulin. If it should become possible to inhibit formation of insulin antagonists through direct action on such enzyme systems which fabricate them or to neutralize their effect in the tissues, many individuals using insulin might not require it, provided the amount of endogenous insulin is adequate. The juvenile with diabetes, after a few years, has no extractable pancreatic insulin, but in the period of pre- and early diabetes, insulin-like activity in the blood is increased; decline is gradual after a few years. Whether eventual loss of endogenous insulin and decreased insulin-like activity is due to antagonists to insulin which strain the beta cell mechanism is not known, but ability to prevent antagonism to insulin in the juvenile would greatly aid the study of the diabetic state in growth-onset diabetes.

Electron blood vessel changes. In another parameter, a different kind of research is going on to detect the person with prediabetes. New techniques in examination of small blood vessels have resulted in interesting findings. Ditzel and associates,[16] by using a stereodissecting microscope, and Camerini-Dávalos and associates[17] have shown venular dilation with increased venule-arteriole ratio of the micro blood vessels of the bulbar conjunctiva in prediabetic children and prediabetic juveniles and adults, respectively. Camerini-Dávalos and associates[17] noted an increased electron density of vascular elastic tissue, with often a fine fibrillar structure and increased electron density of dermal elastic tissue. In 2 prediabetic children, renal biopsies revealed irregular thickening of periodic acid–Schiff stained material in the renal glomerular basement membrane and parietal layer of Bowman's capsule, with similar changes in certain afferent and efferent glomerular vessels.

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*Unpublished data

Another unsolved question is whether vascular degenerative changes seen in diabetes are part of a genetic diabetic defect or secondary to the total deranged metabolic state of the disorder.

The synthesis of insulin. The insulin molecule consists of 2 chains, insulin A chain, which contains 21 amino acids, and insulin B chain, which has 30. The chains are linked by disulfide bridges. Chain A also has an intrachain disulfide.

Katsoyannis and associates[18] reported in September 1963 synthesis of A chain of sheep insulin and its combination with natural B chain to generate insulin activity. Recently Katsoyannis and associates[19] announced synthesis of B chain sheep insulin and its combination with natural A or synthetic A chain to generate insulin activity. This accomplishment represents the first chemical synthesis of a naturally occurring protein. Data strongly suggest that the structure proposed by Sanger for the insulin chains is correct, according to Katsoyannis and associates.[19] "This constitutes a unique case when a proposed primary structure for a protein has been confirmed by chemical synthesis."[19] Work is now in progress on the synthesis of amounts of the 2 chains adequate to permit isolation of synthetic insulin by combination of synthetic A and B chains. The present material is synthetic insulin, and such an insulin will enable the scientist to change the molecular structure of insulin, which will aid in studies of molecular biology in relationship to the genesis of diabetes, the physiological action of insulin by incorporating radioactive elements, and in the study of the formation of antagonists and antibodies to insulin. Zahn and associates of Aachen Technical College, Germany, also have synthesized the 2 chains of sheep insulin and have succeeded in combining them to produce biologic effectiveness. These papers have just been received, and no English translation is available.

Insulin antibodies. It seems logical that insulin-binding antibodies to exogenous insulin could be species-related, and that the closer the similarity to human insulin structure the less the potential for antigen-antibody reaction. If consideration is given to insulin from commercial sources, that derived from pork pancreas bears the closest relationship to human insulin structure, the single difference being that threonine occupies the C-terminal position in the B chain in human insulin and alanine occupies it in pork insulin. It is possible to remove the terminal alanine from pork insulin according to Akre, Kirtley, and Galloway,[20] by the utilization of a specific enzymatic—carboxypeptidase A—degradation. The derivative so produced apparently has the same amino acid sequence as human insulin except for absence of threonine in the C-terminal position. This deficiency plays little part in the biologic activity of insulin. Pork insulin, which is thus dealaninated (dalanated insulin is the generic name for such a preparation), represents the nearest approach to human insulin we have. This preparation has been shown to reduce the amount of insulin necessary to control some patients with insulin resistance as a result of artificial changes in the molecular structure of insulin. In one of the author's patients studied intensively for more than two years and considered a brittle diabetic person, great reduction in unmodified insulin dosage has been made using unmodified dealaninated porcine insulin, but no great changes have been made in the modified insulin dosage using pork insulin.

Pancreatic transplants. New interest has been aroused in pancreatic transplants as a result of accumulating knowledge relative to autoimmune processes which affect the immunogenic rejection phenomenon. Several broad studies are about to be undertaken in this country; if successful, they could contribute to possible cure of diabetes. These studies will involve transplantation of pancreatic grafts and islet cell tissue in different species of animals and in the same animal at different sites. Such grafts have survived from a day or two to a week in the past, but several recent transplants have survived for longer periods.

Genetic code. Research work in genetics, microbiology, molecular biology, virology, bacteriology, chromosomal biochemistry, and other areas is opening up a vast new approach to the study of the genesis of diabetes. Since 1961 great strides have been made in the cracking of the genetic code.

Ribonucleic acid preparations and short-chain deoxyribonucleic acids have been synthesized with use of cell-free systems capable of synthesizing protein when properly stimulated. Hope is that ultimately cell-free systems will shed light on genetic control mechanisms of many inherited disorders, including diabetes. Scientists recently have been able to change the genetic code of bacteria by introduction of a virus in which nucleic acid takes over direction of the cells from deoxyribonucleic acid. Advances in visualization of human chromosomes have made it possible to link chromosomal abnormalities with certain diseases and have opened up a new perspective in the study of human heredity. It is within the realm of possibility that some day the defect in the genetic code responsible for diabetes will be found, plus ways and means to change the code.

ORAL HYPOGLYCEMIC COMPOUNDS

I have been asked to comment on use of available oral hypoglycemic compounds. Four such compounds are in use. Three belong to the sulfonylurea group—tolbutamide (Orinase), chlorpropamide (Diabinese), and a new one, acetohexamide (Dymelor). The other is a biguanide—phenethylbiguanide, phenformin (DBI).

Indications. These compounds are most likely to achieve success in patients past the age of 35 to 40 with maturity-onset diabetes, particularly those with an insulin requirement less than 40 units daily, and more effectively when the requirement is less than 20 units daily. Age of onset of diabetes is more important than current age of the patient, according to Marble.[21] Persons with onset after the age of 40 may be responsive, whereas younger ones are apt to be unresponsive. The patient should have no history of ketoacidosis nor be ketosis-prone. When used with insulin, these compounds have been reported to be of some value in treatment of the juvenile and brittle types of diabetes and also in some cases of insulin resistance.

Contraindications. Use without insulin is contraindicated in the juvenile and in the growth-onset type of diabetes seen in some adults. The drugs should not be used in patients who have had ketoacidosis or who are ketosis-prone or in the obese patient whose diabetes can be controlled with diet alone. They should not be relied on in stressful conditions such as surgical procedures, severe trauma, or infection. The sulfonylureas should not be used in patients with hepatic or renal dysfunction and certain hematologic disorders. They may not be effective if vomiting and diarrhea are associated. The uncooperative patient is not a good candidate, since ketoacidosis, hypoglycemia, or drug reactions may occur from inadequate or excessive dosages. Insulin should be used in pregnant women and those of childbearing age until evidence is clear-cut that the compounds exert no teratogenic or adverse effect on the outcome of pregnancy. It is estimated that control of diabetes with oral compounds is good to fair in 50 to 70% of suitably selected adult patients.[21] Secondary failures, or failure of control after successful control for one month or longer, are reported to vary from 5 to 30%.

SULFONYLUREAS

Physiological action. The precise mechanism of action of the sulfonylureas is not known. It has been clearly shown, however, that endogenous insulin is necessary for their action. These agents are not hypoglycemic in the totally depancreatized diabetic man or animal or in the severely alloxan diabetic animal.[22] Agreement is general that they exert their effect chiefly by stimulating the release of insulin from the beta cells of the islands of Langerhans. It is not known precisely what effect, if any, they may have on hepatic glucose output, and most attempts to demonstrate increased peripheral utilization of glucose have been unsuccessful.

1. Tolbutamide (Orinase). Tolbutamide has been used extensively since 1957, and it has been predicted that during the current year more than 750,000 diabetic patients will be using it. Duration of action is relatively short; its half-life is from four to eight hours, and 75% of a single dose is excreted in twenty-four hours. Therefore, it must be given in divided doses two or three times daily. Maximum dosage is 2 gm. daily, and only occasionally will a patient who has not responded to this amount respond better to a higher dosage. Side effects are reported to be low—3.2% in 9,000 cases studied. Minor gastrointestinal symptoms such as nausea, epigastric fullness, and heartburn associated with headache often disappear when the tablets are administered after meals. Various types of skin reactions have been reported, and if they do not disappear with continued treatment, the drug should be discontinued. Significant hypoglycemia has been rare. Leukopenia, thrombopenia, and hemolytic anemia have been reported in a few cases. Only 2 cases of cholestatic jaundice have been reported in 750,000 patients. No cases of renal dysfunction attributable to the drug have been reported. Tolbutamide has been shown to have feticidal and teratogenic effects in animals in large doses, and it should not be used in women of childbearing age or pregnant diabetic women until further studies are made.

Fajans and Conn[23] reported a study of fifty-two months' use of tolbutamide in 20 nonobese subjects 11 to 35 years old with asymptomatic diabetes. The condition was discovered in 18 after glucose tolerance tests. The drug was administered in a dosage of 0.5 gm. twice or three times daily. Carbohydrate tolerance improved or became normal in 17, improvement continuing as long as four years. Results suggested that prolonged administration improves performance of insulin-producing tissue in addition to its acute action in facilitating insulin release.[23]

2. *Chlorpropamide (Diabinese).* Chlorpropamide has the longest duration of action of the oral hypoglycemic compounds, its half-life being reported as thirty-six hours. It is detected in the blood one hour after oral administration, reaching a maximum level within three to six hours. Within ninety-six hours, 80 to 90% of a single dose is excreted in the urine. If therapy has been continuous for sixteen days and then discontinued, clearance from the blood is not complete for twenty days. This agent is capable of producing severe hypoglycemia, and patients who become hypoglycemic require close supervision for a minimum period of three to five days and may require hospitalization. Chlorpropamide should be given only once daily in an amount of 0.125 to 0.5 gm., never exceeding 0.5 gm. A compiled study of 1,476 treated patients revealed no acquired resistance during the period of study in 92.6%. Side effects were reported in 8%, with gastrointestinal symptoms and dermatologic disorders similar to those after use of tolbutamide. In addition, vague neurological symptoms have included weakness and paresthesia. Another side effect is intrahepatic cholestatic jaundice; 33 instances occurred in more than 100,000 patients. Progressive elevation of alkaline phosphatase may indicate incipient cholestatic jaundice, and the drug should be withdrawn. Other hypersensitivity reactions include depression of the formed elements of the blood, such as occasional leukopenia, thrombopenia, aplastic anemia, agranulocytosis, and slight anemia. Occasional severe diarrhea due to nonspecific proctocolitis, with bleeding in the lower bowel, has been reported. When any one of these conditions appears, the drug should be discontinued promptly. Death has been reported in rare instances. Barbiturates should be used with caution, since their action may be prolonged by chlorpropamide. In some patients taking chlorpropamide, a disulfiram-like reaction may be produced by ingestion of alcohol. Chlorpropamide should not be used in Addison's disease or thyroid dysfunction. It is not indicated in women of childbearing age or in pregnant women with diabetes.

3. *Acetohexamide (Dymelor).* Acetohexamide has recently been released by the Federal Food and Drug Administration as a new oral hypoglycemic compound for treatment of diabetes. It has been studied for four years in more than 40,000 patients.

This drug has an intermediate action between that of tolbutamide and chlorpropamide, and its half-life has been reported as six hours[24] after the peak of blood concentration is reached and ten hours after oral administration. Fifty percent of a single dose is excreted in the urine in twenty-four hours and smaller amounts during forty-eight hours. Weller and associates[25] concluded that effective blood glucose control was obtained for more than eight hours postprandially. Recommended dosage is 0.250 to 1 gm. once daily, or a maximum dosage of 1.5 gm. daily in equally divided doses. Doses in excess of 1.5 gm. daily are not recommended. Excellent or good control of diabetes resulted in 90% of patients and in 75% of those transferred from other types of oral therapy. In a survey of 1,500 patients, gastrointestinal disturbances were reported in 43 and cutaneous manifestations of hypersensitivity in 13. Four instances of jaundice occurred among 40,000 patients, but none was directly attributed to the drug. One instance of leukopenia has been reported. Significant hypoglycemia can occur with this compound, and the usual precautions of adherence to diet and proper dosage should be followed. Reproductive studies in 2 generations of animals have shown no evidence of teratogenesis or other abnormalities, but the compound should not be used in women of childbearing age or in pregnant women with diabetes until further studies have been made.*

THE BIGUANIDES

Phenethylbiguanide, Phenformin (DBI). The precise mechanism of action of phenformin is unknown.[22] It would appear that in some way the biguanides increase glycolysis along the anaerobic pathway,[21] but this mechanism is not clear. Unlike the sulfonylureas, phenformin does not stimulate the beta cell to secrete more insulin and is hypoglycemic in the depancreatized and hepatectomized animal.[26] Phenformin does not lower the blood sugar of normal subjects. Under clinical usage it is definitely more active in the presence of some insulin, endogenous or exogenous.

The drug has been used clinically since 1956. No organ tissue or functional toxicity, adverse hepatic or renal effects, or hematologic disorders have been noted. Chief side effects have been gastrointestinal, including anorexia, nausea, occasional vomiting, and, in some instances, diarrhea. Maximum hypoglycemic effect of 25-mg. tablets is four to six hours, so they must be administered from two to four times daily. If total daily dosage exceeds 200 mg., gastrointestinal symptoms are likely. The timed-disintegration capsule of 50 mg. has a hypoglycemic effect of twelve to more than thirteen hours and is usually given twice daily, but not in amounts exceeding 200 mg. daily. The capsule may also be used with the 25-mg. tablet by administering the former at breakfast and the latter at the noon or evening meal.

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*Since this paper was submitted, severe hypoglycemia has been reported. Sustained hypoglycemia can occur in the presence of renal or hepatic dysfunction, in poor nutrition in the elderly, in pseudodiabetes of azotemia, or when the recommended dosage is exceeded.

Despite its wide range of effectiveness, phenformin should not be used in the ketosis-prone patient or, without insulin, in the juvenile or the patient with brittle diabetes. Marble[21] states that it should be used with great care in patients with diabetes requiring more than 20 units of insulin daily, particularly in children and those prone to ketosis. The drug seems to be of particular value in the obese nonketosis-prone patient. According to Williams,[26] phenformin causes decreased lipogenesis and decreased oxidation by adipose tissue of glucose, acetate, and succinate. The agent has been used with insulin in the juvenile with diabetes, the person with brittle diabetes, and the insulin-resistant one with diabetes. Some authors feel that insulin dosage can be reduced in some patients when phenformin is combined with insulin. Krall and associates[27] treated 72 patients with growth-onset diabetes with insulin and/or phenformin or its amyl analogue and reduced the average insulin dose by 64%. Treatment was successful in 35. The drug was discontinued in 29, and 8 failures resulted. Reduction of insulin dosage is not necessarily a criterion of the effectiveness of a compound, and control of the diabetes by measurements of blood and urinary glucose, together with ketone levels, is a more accurate measurement. Ketonuria may occur in some patients, even in the presence of normoglycemia and absence of glycosuria, and may not merely represent so-called starvation ketosis, in which increase of carbohydrates in the diet eliminates the ketosis. Walker and Hannah[28] noted ketonuria in 29% of 117 patients. An alkali reserve of less than 20 mEq. per liter was found in 13. Even in the absence of glycosuria, the urine should be examined for ketones; if found, dosage of insulin should be increased and the drug withdrawn. In some of the author's patients,[28] withdrawal of phenformin alone caused the ketones to disappear. Insulin should form the basis of treatment in the juvenile, the patient with growth-onset type of diabetes, and the one with unstable diabetes. If phenformin is used at all in such patients, it should be as a supplement only. There is no advantage, and there may be disadvantages, in administering this drug to a well-regulated patient taking insulin in order to reduce insulin dosage. It should not be used in the presence of hepatic or renal dysfunction or in pregnancy or in patients likely to become pregnant.

Lactic acidosis, an unusual syndrome associated with phenethylbiguanide therapy, was reported by Tranquada and associates,[29] with 3 fatal cases, and by Bernier and associates,[30] with 2 fatal cases. All cases were associated with elevated blood lactate, circulatory failure, and hypotension. Previous studies had shown moderate elevations of blood lactate in some patients receiving phenethylbiguanide. Krall and Rees[31] reported 6 cases of fatal lacticacidemia, none of whom had received oral hypoglycemic treatment. All had decompensated ketoacidosis, diabetic neuropathy, and azotemia. Twelve additional patients with ketoacidosis and lacticacidemia were reported, none of whom had clinical evidence of impaired cardiac or renal function. All had elevated serum lactate which reached normal levels in one to six days after correction of the diabetic acidosis, when effective circulating blood volume and cardiorenal function returned to normal. With the help of the organic buffer tris (hydroxymethyl) aminomethane (THAM), the ketoacidosis was corrected in every case,[31] but reversal of the lacticacidemia occurred only in those patients uncomplicated by irreversible central or peripheral vascular failure. Current status of the lactic acid syndromes as related to phenethylbiguanide and its relationship to lactic acidosis is well summarized by Danowski,[32] who feels that there is no evidence that this drug by itself produces lactic acidosis, although it is not known whether the slight tendency to lacticacidemia during therapy accentuates lactic acidosis of hypoxic or other origin. Possibility of lactic acidosis can be suspected in diabetes whenever serum bicarbonate is substantially reduced without substantial elevation in urine or plasma ketones and excluded if the bicarbonate is normal.[32]

COMBINATION OF A SULFONYLUREA AND PHENFORMIN

The problem of secondary failure to oral hypoglycemic compounds is an important consideration and seems greatest with the sulfonylureas and less with a phenethylbiguanide. In some instances after secondary failure, the patient can be reregulated with insulin and then regulated again with an oral hypoglycemic compound. Combinations of the sulfonylurea compounds with a phenethylbiguanide have been used. The latest report by Beaser[33] revealed that in a study of 115 patients treated with oral compounds for more than seven years, 61 could be successfully maintained with a single sulfonylurea drug for fifty-two months, while failure resulted in 54. The latter were then treated with a combination of chlorpropamide and a phenethylbiguanide, and successful reregulation was attained in 47 and in 42 over an additional period of twenty-nine months.

In general, patients taking any of the sulfonylurea compounds should be studied at frequent intervals for evidence of hepatic and renal dysfunction or hematologic disorders. Camerini-Dávalos and associates[34] have shown that, as a group, patients with diabetes have significantly higher values for alkaline phosphatase, bromsulfalein retention, and thymol flocculation than those without diabetes. Increasing levels of alkaline phosphatase should alert one to the possibility of early cholestatic jaundice. Frequent blood counts should prevent possibility of irreversible depression of the formed elements of the blood, such as is seen in thrombocytopenia, aplastic anemia, and agranulocytosis. Renal function studies serve to alert the physician to the possibility of severe hypoglycemia due to delayed excretion of these compounds.

Fatalities. While fatalities attributable to oral hypoglycemic compounds have been rare in proportion to the number of persons using them, appropriate laboratory procedures should be performed at frequent intervals to guard against such a possibility. One death was attributed to aplastic anemia in a patient taking tolbutamide.[35] A fatality from marrow aplasia[36] and 2 from agranulocytosis[37,38] have been reported in patients taking chlorpropamide. Sudden onset of leukopenia should alert one to such possibilities, and with reduction in granulocytes, blood platelets, or other formed elements of the blood, the drug should be promptly withdrawn and a bone marrow biopsy studied for evidence of pathological changes.

Use of phenformin has not been associated with hepatic and renal dysfunction or hematologic disorders, but danger of ketoacidosis exists. Patients should be advised to make frequent tests for ketonuria, even in the absence of glycosuria, and if present report to their physicians at once. Alkali reserve should then be measured, and if low, the drug should be discontinued and insulin dosage increased. This compound should not be given if circulatory failure, hypotension, azotemia, or hypoxia exists because of danger of lacticacidemia. It should be used with caution, if at all, in patients with hepatic or renal dysfunction. Use of thiazides in patients taking oral hypoglycemic compounds may evoke hyperglycemia and make the diabetes more difficult to control. Diet should be closely adhered to by patients using oral hypoglycemic compounds or control of diabetes fails. Some secondary failures result from lack of dietary control and not from failure of the hypoglycemic activity of the compounds.

SUMMARY AND CONCLUSIONS

1. Sixty to 90% of persons genetically susceptible to diabetes are not discovered by present routine methods of examination.

2. The glucose tolerance test, when done under certain standard conditions, is still probably the most reliable method for early diagnosis of diabetes.

3. The cortisone glucose tolerance test, when done under specific conditions, gives a greater positive response in nondiabetic relatives of those with diabetes, in the older group, in cases of probable diabetes with borderline standard glucose tolerance curves, and in the obese patient with diabetes whose standard glucose tolerance curve has returned to normal after weight reduction. It has also shown a greater positive response in the patient with diabetes associated with pregnancy and in older people.

4. The prediabetic period begins with conception and is that period when one "can detect an early abnormality which precedes and is not dependent upon insufficient insulin activity," and which implies as yet undiscovered metabolic derangements.

5. Studies in new parameters of prediabetes indicate that there may be increased insulin-like activity of the blood in this period. Excessive synalbumin antagonism has been found in the blood of diabetic relatives. Changes in the venule-arteriole ratio have been seen. Increased electron density of dermal elastic tissue and basement membrane of vessels, as well as changes in the glomerular basement membrane and Bowman's capsule, have also been noted.

6. The synthesis of the A and B chains of insulin has been accomplished and, when combined, insulin activity is generated. Synthetic insulin allows the molecular structure to be changed to provide additional information with respect to genetic studies, the physiological action of insulin, and the formation of antag-

onists and antibodies. The complete synthesis of insulin has also been reported in Germany.

7. The molecular structure of pork insulin has been changed to approximate closely that of human insulin, with the hope of reducing antibody formation to insulin.

8. New interest has been aroused in pancreatic transplants as a result of the accumulation of knowledge relative to autoimmune processes which affect immunogenic rejection phenomenon.

9. Recent advances in the study of the genetic code, with advances in the study of cell-free systems and visualization of human chromosomes, have opened up a new perspective in the study of human heredity which may eventually shed light on the genesis of diabetes.

10. Oral hypoglycemic compounds are of value in the patient with maturity-onset diabetes whose insulin requirement is less than 40 units daily, who has not had ketoacidosis, and who is not ketosis-prone. They should not be used in stressful conditions or in women of childbearing age or those who are pregnant. They should not be used in patients with hepatic or renal dysfunction or in those with certain hematologic disorders.

11. Tolbutamide (Orinase) has the shortest duration of action of the sulfonylureas and must be given two or three times daily. Side effects are reported to be low, and significant hypoglycemia is rare.

12. Chlorpropamide (Diabinese) has the longest action of the sulfonylureas, with a half-life of thirty-six hours. It should be administered only once daily. Severe hypoglycemia can occur. Side effects have occurred in about 8% of patients, and 33 instances of cholestatic jaundice occurred in more than 100,000 patients treated with this compound.

13. Acetohexamide (Dymelor) is the newest of the sulfonylureas and has an intermediate action between that of tolbutamide and chlorpropamide. It is administered once or twice daily. Severe hypoglycemia can occur. Side effects have been minimal in more than 40,000 patients. Four instances of jaundice have occurred, but none could be directly attributed to the drug.

14. Phenethylbiguanide, phenformin (DBI), is a biguanide derivative, and its mode of action is not known. Indications for its use are the same as for the sulfonylurea compounds, but it has been used in combination with insulin in the juvenile with diabetes and in combination with insulin in the patient with brittle diabetes. Hypoglycemia can occur. Contraindications to its use without insulin are the same as for the sulfonylureas. It has been used in sulfonylurea failures in combination with the sulfonylureas. Ketonuria, which may occur with phenformin, may signify ketoacidosis even in the presence of normoglycemia and absence of glycosuria. Lactic acidosis has been found in diabetic patients taking this compound, but no definite evidence indicates that it is directly responsible for the condition.

15. Hepatic and renal function studies, as well as hematologic studies, should be done at intervals in patients using oral compounds.

16. When phenformin is used alone in the patient with growth-onset diabetes, ketonuria and ketoacidosis may result. This drug should not be used without insulin in this group of patients. Phenformin should not be used in patients with circulatory failure, azotemia, hypotension or hypoxia, and must be used with caution or not at all in those with hepatic or renal dysfunction.

17. One fatality from aplastic anemia occurred in a patient using tolbutamide, and 1 from marrow aplasia and 2 from agranulocytosis have been reported in patients using chlorpropamide. Frequent hematologic studies should be performed in patients taking these compounds. Onset of leukopenia may be a forewarning of subsequent serious blood dyscrasias.

18. Fatal hypoglycemia has been reported in some patients taking the oral compounds. Sustained hypoglycemia has occurred in the presence of hepatic and renal dysfunction, in the elderly, in the pseudodiabetes of azotemia, or when the recommended dosage has been exceeded. Oral compounds should not be used in cases of hepatic or renal dysfunction or in the pseudodiabetes of azotemia. The dosage should be reduced in elderly patients.

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POSSIBLE SMALL BOWEL TUMOR is suggested by findings of persistent abdominal discomfort not attributable to irritable bowel; roentgenographically normal gallbladder, stomach, and colon; and blood in stools. Tumors in the duodenojejunal junction can be hidden by the barium-filled stomach, and roentgenographic examination must include all portions of the small bowel. Fluoroscopy and spot films of questionable areas are necessary. Saline irrigation after intubation with a Miller-Abbott tube may disclose guaiac-positive secretions. Obstruction may cause recurrent crampy abdominal pain two or more hours after eating. Laparotomy may be necessary for diagnosis of periodic obstruction with vomiting, distension, cramps, and inability to pass flatus. Malignant tumors are accompanied by persistent occult blood loss and serious anemia.

JAMES MYHRE, M.D., University of Minnesota and Northwestern Hospital, Minneapolis. Amer. J. dig. Dis. 8:916-922, 1963.

Case Report on Unusual Metastatic Spread of Bronchogenic Carcinoma

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To quote Hinshaw and Garland's "Diseases of the Chest,"[1] all bronchogenic cancers tend to metastasize early, which accounts for the high mortality rate, but it is usual for lymphatic spread to be first in most cases. The following is a report of what appears to be embolic bloodborne spread of the disease soon after exploration of the primary tumor.

CASE REPORT

A 64-year-old man was admitted to Missouri State Sanatorium in November 1962 with a two-month history of recurrent hemoptysis. He said he had been well until the spring of that year, when he began to lose weight and feel weak. He also had a slight, productive cough. He did nothing about these symptoms until two months before admission, when he started to spit up blood-streaked sputum. A chest roentgenogram on November 21, 1962, was first made (Fig. 1) and showed an infiltrating lesion extending from the left hilum into the left midlung field. The patient was admitted to the sanatorium for a diagnostic work-up.

His history was uneventful except that he smoked more than 2 packages of cigarettes a day for many years, although he had recently discontinued this practice. In addition, he stated that some years before he had accidently amputated the tip of his left fifth finger.

Physical examination showed a normally developed man, in no apparent distress. His temperature and blood pressure were normal. He had lost approximately 30 lb. Apart from a diminution of expansion of the left base with dullness over the left chest and absence of breath tones in the left lower third, he appeared healthy.

Five days later bronchoscopic examination was carried out under topical anesthesia. The left main stem bronchus appeared to be rigid due to an extrinsic pressure, although no obstructions or gross tumors could be visualized. Smears and biopsy from the left side were negative. Left exploratory thoracotomy was undertaken on December 12, 1962. On opening the left side, an extensive carcinoma involving the entire hilar region with apparent invasion of the artery, both pulmonary veins and extension onto the pericardium, was found. The lesion was obviously inoperable. A small biopsy of the lung was made, and the chest was then closed. This biopsy was reported as bronchogenic carcinoma, epidermoid type (Fig. 2, 2a).

Postoperative course was uneventful until December 22, 1962—ten days after the surgical exploration. The patient complained that the tip of the little finger of the right hand hurt, and on examination it appeared to be swollen and hot. At first it was thought this might represent a local infection of the pulp space, and treatment of warm saline soaks and furacin dressings was applied. Despite treatment, the patient continued to complain that the pain was progressively worse, and it was obvious on examination that the finger was rapidly enlarging (Fig. 3). During the next two or three days treatment was continued without effect, and on December 26, 1962, roentgenograms revealed that the distal phalanx was destroyed (Fig. 4). Under local anesthesia, a biopsy of this area was carried out and was reported to be a squamous cell carcinoma. Two days later the little finger of the right hand was amputated. The surgical specimen (Fig. 5) showed the entire distal phalanx had been replaced by tumor tissue which, on microscopic examination, was reported as a metastatic epidermoid carcinoma (Fig. 6). The skin edge revealed no tumor which made the pathologist fairly certain this was a metastatic lesion. The wound healed by first intention and the patient was discharged on January 27, 1963. Diagnosis was inoperable bronchogenic carcinoma, epidermoid type, of the left lung, with metastasis to the right little finger, which was amputated.

Metastatic series of other bones failed to reveal

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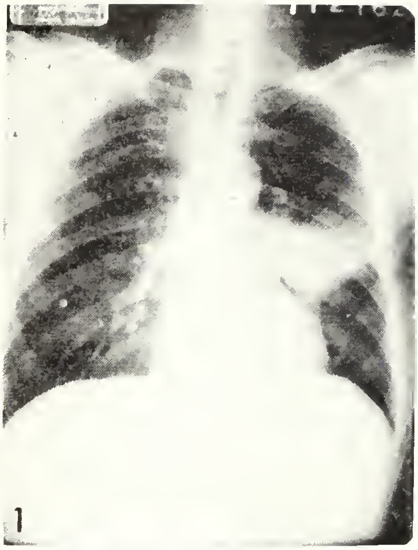

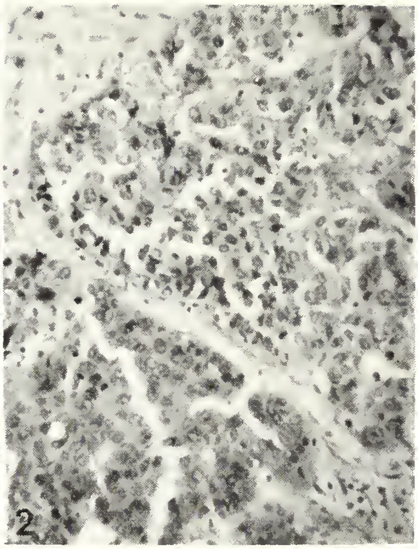

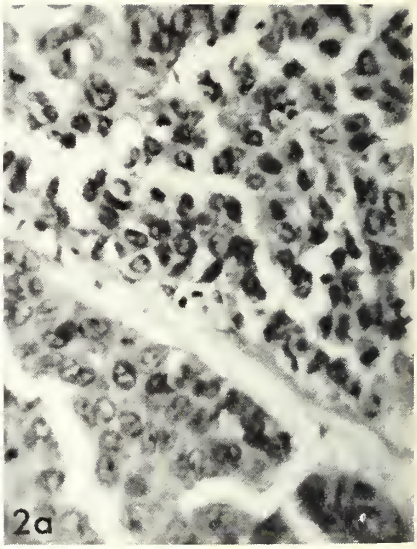

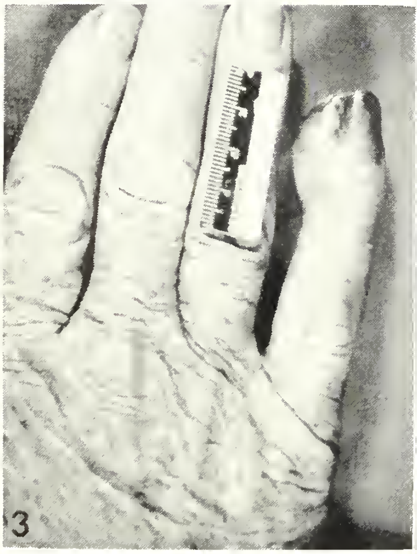

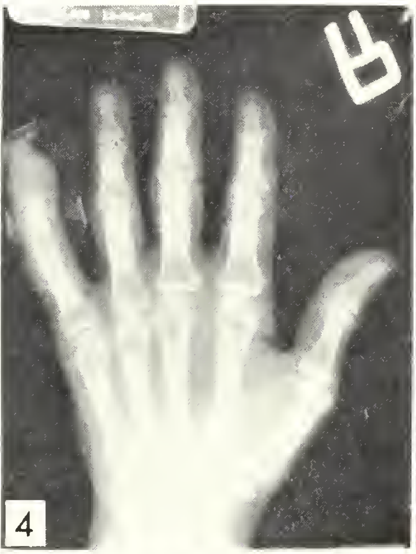

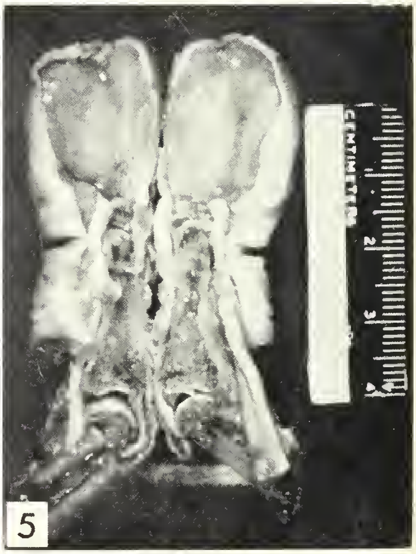

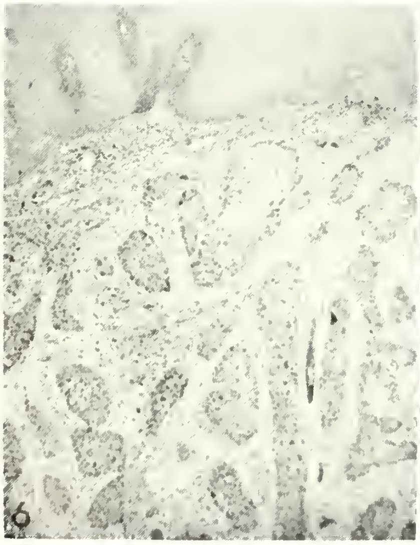

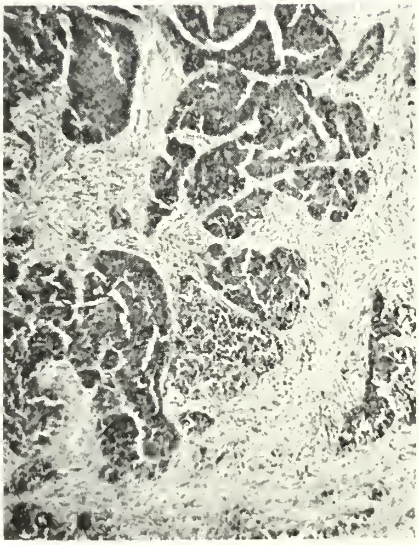

Fig. 1. Admission film

Fig. 2, 2a. Lung biopsy

Fig. 3. Gross appearance of finger before amputation

Fig. 4. Roentgenogram of right hand showing destruction of distal phalanx of little finger.

Fig. 5. Surgical specimen following amputation

Fig. 6, 6a. Microscopic sections from finger any evidence of other bone metastasis. However, two months later the patient died.

This case report is submitted as an example of an interesting metastatic lesion arising from a bronchogenic carcinoma, almost certainly bloodborne and probably embolic. It was possibly a result of the left exploratory thoracotomy with the handling of the hilum of the lung being the precipitating cause of the embolus. The rapid onset would seem to confirm this.

I am grateful to the medical director of the Missouri State Sanatorium, Dr. C. A. Brasher, for permission to publish this case report, and to Dr. John W. Polk, chief of Surgical Service, Missouri State Sanatorium.

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A CARDBOARD CASSETTE, cut to the general contour of the anterior chest wall, is useful in mammography. The device increases the portion of medial and lateral aspects of the breast that can be examined in craniocaudad projection. Unexposed film is cut to fit. The cassette is supported by a longer piece of Masonite board which is cut to conform to the contour and is placed with the shaped edge extending over the end of an adjustable-top table, with a sandbag weight on the opposite end of the board. As the patient sits next to the table, the cassette is placed under the breast, with contour portion in close contact with the chest wall. The roentgenographic tube is placed directly above so the central beam passes through the middle point of the breast.

ROBERT J. DONOVAN, Mayo Clinic, Rochester, Minn. Amer. J. Roentgenol. 91:917-918, 1964.

VERTEBRAL EPIPHYSITIS occurs in about 6% of children and can be recognized by characteristic roentgenological changes. Multiple vertebrae are affected in most patients. Irregularities are evident most often in the thoracic vertebrae, then in combinations of thoracic and lumbar vertebrae, and least often in the lumbar spine. In the active form of the disease, vertebral rings are fragmented in about three-fourths of patients, are often thickened, and occasionally show delayed development. The upper and lower recesses on the anterior aspects of the vertebral bodies are enlarged and irregular in about one-fifth of patients, producing a deficiency in the anterosuperior and anteroinferior aspects of the affected vertebrae. Superior and inferior surfaces of the vertebrae often are indistinct and irregular on films. Wedging of the vertebral bodies, particularly in the thoracic region, is common. Schmorl's nodules are seen in a majority of patients, and narrowing of one or more intervertebral spaces occurs in about a quarter. In 20- to 30-year-old patients with inactive vertebral epiphysitis, osteoarthritis in the spinal column may be a clue to preexisting epiphysitis. The commonest roentgenological finding is the irregular appearance of the superior and inferior surfaces of vertebral bodies. Schmorl's nodules, wedging, and narrowing of the intervertebral spaces are observed about as frequently as in patients with active disease.

HUGH J. WILLIAMS, M.D., and DAVID G. PUGH, M.D., Mayo Clinic and Foundation, Rochester, Minn. Amer. J. Roentgenol. 90:1236-1247, 1963.

Persistency of the Patent Ductus Arteriosus in the Aged

Report of a Case in a 69-Year-Old Female

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PATENT DUCTUS ARTERIOSUS is one of the more frequent congenital cardiovascular anomalies. It is found in 12.5% of the congenital heart disease group,[1] but is a rarity in the aged. Relatively few cases have been reported in people of 60 years of age and older. In the case to be discussed, the diagnosis was suspected antemortem, and was confirmed at the time of autopsy.

CASE REPORT

A 69-year-old female was admitted to Norfolk General Hospital with a two-day history of gradually increasing breathlessness, harrassing cough, fever, and chill sensations. In retrospect, the patient called attention to exertional dyspnea experienced for many months and relatively recent orthopnea. She denied ever having been edematous or cyanotic or having had prior treatment for any heart disease or hypertension.

Physical examination revealed a slender, tachypneic female with plethoric facies. Her blood pressure was 140/70 mm. Hg. The pulse rate was 104 per minute and regular. There were grade 2 arteriosclerotic retinal changes. Peripheral pulsations were all palpable and equal. The neck veins were flat, and there was no thyromegaly. The chest was emphysematous, there being increased anteroposterior diameter, diminished breath sounds, and slight hyperresonance to percussion. Some dullness to percussion was noted at the right base posteriorly.

The heart was enlarged clinically. The point of maximum apical impulse was in the sixth left intercostal space lateral to the midclavicular line. A sinus tachycardia was present with no arrhythmia. A harsh grade 3 systolic murmur was audible at the base of the heart with radiation toward the apex. A low-pitched, diastolic component was discernible at the pulmonic area, where the second sound was slightly accentuated. The liver edge was palpable 2 fingerbreadths below the right costal margin, nontender and firm in consistency. There was minimal clubbing of the fingers, with some cyanosis of the nail beds. No more cyanosis was noted in the nail beds of the toes than in the fingers. No edema was present, and the physical examination was otherwise not remarkable.

A chest roentgenogram (Fig. 1) revealed the presence of pleural fluid at the right lung base. The heart was enlarged with straightening of the left cardiac border and prominence of the pulmonary artery segment. A calcification was noted to be present in the region of the aortic infundibulum. The electrocardiogram revealed changes consistent with chronic bronchopulmonary disease, and evidence reflecting left heart strain.

The patient was admitted to the hospital with a presumptive diagnosis of pneumonia or pleural effusion perhaps related to pulmonary embolus, or both. The cardiac murmurs and the calcification noted in the region of the aortic infundibulum suggested the presence of a calcified patent ductus arteriosus. An appropriate regimen was instituted, but clinical response was unsatisfactory. A gradual, progressively downhill course was subsequently manifested, the patient having a sudden demise on the eighth day of her hospitalization, characterized by rapidly increasing dyspnea, cyanosis, and irreversible shock.

AUTOPSY FINDINGS

The pertinent abnormalities at postmortem examination were noted to be present in the cardiopulmonary systems. The ascending aorta showed numerous, yellowish, calcified plaques. A ductus arteriosus was present and patent, measuring 1 centimeter in length (Fig. 2). The lumen was markedly narrowed by calcification, which was most prominent at the aortic portion.

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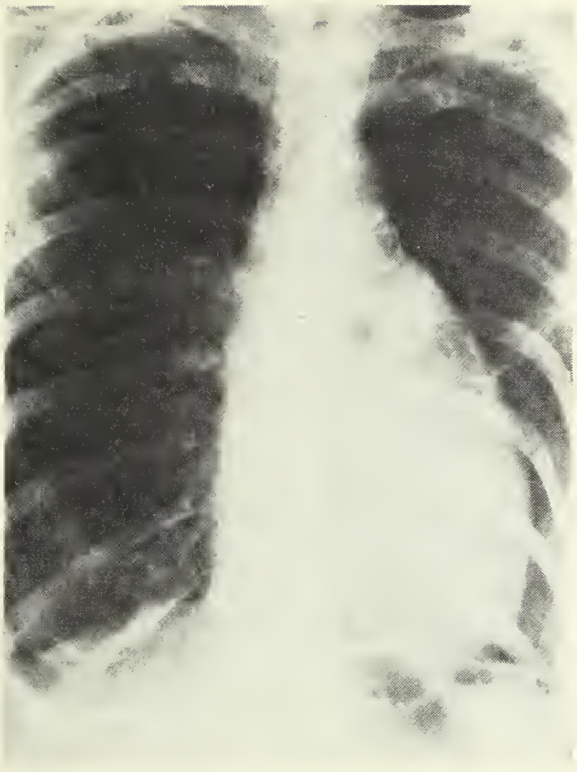

Fig. 1. Note calcification in the area of the aortic infundibulum.

The heart was grossly hypertrophied, weighing 450 grams. The right atrium and the right ventricle were markedly dilated. The pulmonary artery was dilated, with adherent clotted blood lodged in several branches of both pulmonary arteries. No source for the emboli was demonstrated.

It was concluded that the patient had a persisting hemodynamically functioning patent ductus arteriosus. The cause of death appeared to have been due to acute, right-sided heart failure due to multiple pulmonary emboli.

COMMENTS

Not more than a dozen references of this lesion in people of sixty years of age or older were noted in available English literature. Fishman[2] reported a case which had been observed with this clinical diagnosis for seventy-one years, and was demonstrated at necropsy. Aiken[3] reported a case in a 74-year-old female who had been known to have a cardiac condition since early childhood. The oldest patient reported in the literature was 75 years of age.[4]

As evidenced by the increasing number of patients being reported in the geriatric group, patent ductus arteriosus is certainly compatible with long life. However, the size of the ductus

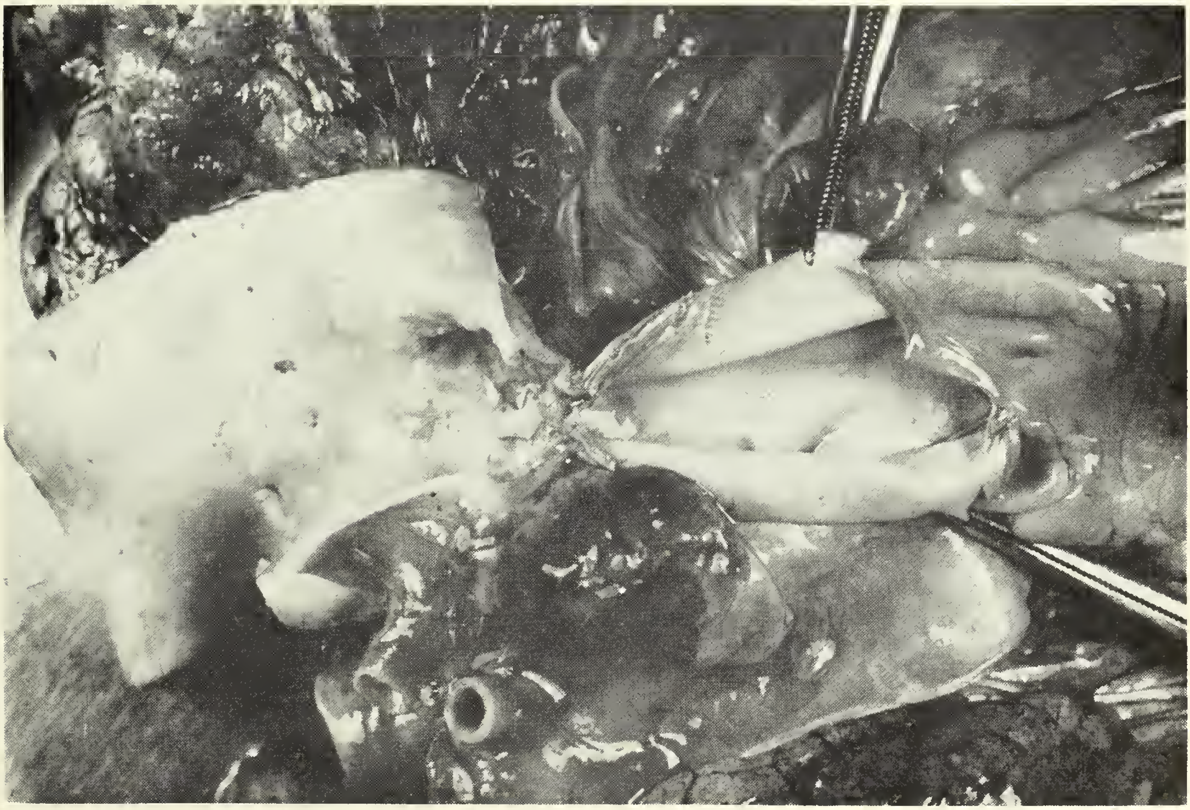

Fig. 2. Postmortem specimen demonstrating the calcified ductus communicating between the aorta (left) and the pulmonary artery (right)

and the direction of flow through it are most critical factors. There is little question that if the diagnosis is made soon enough, there being no contraindication, ligation and section of the ductus should be performed, not merely to correct the physiological hemodynamics but to prevent bacterial endocarditis. However, surgical intervention in older patients should be highly selective since it naturally would carry with it a significantly higher risk.

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LATENT ABSCESS of the temporal lobe of the cerebrum can occur in chronic suppurative otitis media and should be considered in patients with associated cholesteatoma and with headache, dizziness, or other neurological symptoms of recent onset. A complete neurological examination is needed, with neuroradiologic contrast studies if a focal cerebral abnormality is revealed. A negative electroencephalogram is strong evidence against a supratentorial brain abscess. Brain abscess was unsuspected before mastoidectomy in 17 patients with chronic suppurative otitis media. History and pathological findings gave evidence that latent temporal lobe abscess existed before mastoidectomy in 7 of the patients; 6 had cholesteatoma, 5 preoperative headache, and 5 preoperative vertigo or dizziness. In the remaining 10 patients, brain abscesses apparently originated after mastoidectomy in 2 and the time of origin could not be determined in 8.

D. THANE CODY, M.D., KENDALL B. CORBIN, M.D., and HENRY L. WILLIAMS, M.D., Mayo Clinic and Foundation, Rochester, Minn. Laryngoscope (St. Louis) 74:346-358, 1964.

OPERATIVE FINDINGS determine the required surgical treatment for recurrent common bile stones. In 8 to 9% of patients, stones are retained after initial choledocholithotomy and are not detectable by the usual methods of biliary tract examination. Re-formation of stones after the initial procedure may be due to biliary stasis, infection, metabolic and hereditary factors, hypercholesterolemia, and race. Idiopathic stones may be caused by remaining stony debris, obstruction of bile flow into the duodenum, or altered chemical content of bile. If the biliary tract appears normal at operation for recurrent stones, the stones are removed and temporary T-tube drainage of the ducts is done. Internal drainage is necessary for structural abnormalities of bile ducts caused by disease or previous operation. Bile flow may be obstructed by peripapillary carcinoma, benign fibrous stricture, or common duct diverticulum. Operative cholangiography is helpful in assuring that all stones are removed. Of 46 patients requiring choledocholithotomy at least twice during an eleven-year period, 15 required a second operation for calculi overlooked at the initial surgical procedure. Stones had re-formed in 31 patients, 15 with structural irregularities predisposing to stone formation.

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Clinical Significance of the Absent Umbilical Artery

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Fargo

Early recognition of congenital deformities, many of which are today amenable to treatment, can lead to more rapid institution of appropriate corrective measures and avoid the frequently tragic consequences of neglect. The importance of careful examination of the newborn in the delivery room has long been appreciated. Perhaps not so well recognized is the fact that congenital anomalies of the infant are sometimes associated with placental abnormalities which can, in some instances, be more easily detected. It is the purpose of this report to focus attention upon one such malformation of the placenta—the absence of one umbilical artery.

Benirschke and Brown,[1] in reviewing the literature on this condition, report that Otto, in 1830, presented a collection of 40 cases lacking an umbilical artery. Hyrtl, in 1870, noted 12 cases, 2 of which were associated with malformed infants. In studying 297 umbilical cords from spontaneous abortion specimens, Javert and Barton[2] found one example of the defect and stated that "its full significance remains unknown."

In 1955, Benirschke and Brown[1] published a retrospective study of 55 cases in which one umbilical artery was lacking. These were accumulated over a twenty-year period and were selected in that they were found among specimens submitted for pathological examination. In these cases 13 infants had been discharged from the hospital, apparently normal. However, 42 were either stillborn or did not survive and 27 of these had proven congenital anomalies. Also, 18 of the 46 placentas available for study showed other abnormalities including circumvallation, multiple infarction, and velamentous insertion of the cord.

Enlarging upon the original study, Benirschke[3] in 1960 reported a total of 113 cases of which 58 offspring had major or minor congenital malformations. In a series of 1,500 placentas from consecutive deliveries he found 15 infants who lacked an umbilical artery, 7 of whom were found to have abnormalities. He also reported increased incidence of the defect in twin pregnancies usually occurring in the umbilical cord of only one twin.

Faierman[4] has collected a series of 11 cases in which only one umbilical artery was present. These were among 411 autopsies on babies under 8 weeks of age. Six of the 11 were live births and of these, 2 had no malformation at autopsy, 2 had anomalies incompatible with life, and 2 had abnormalities amenable to surgery. She concluded that a newborn with no gross malformation but with one umbilical artery has a 2 to 1 risk of having an internal abnormality which may be amenable to surgery. In summary, congenital anomalies appear to be present in 50 to 75% of infants with a single umbilical artery.

CASE PRESENTATION

A 29-year-old para 3, gravida 5 was delivered of a 6 lb. 10 oz. female infant. Pregnancy and delivery had been entirely uncomplicated. The one minute apgar of the newborn was 10 and the remainder of the physical examination was normal except for an abundance of clear mucus in the nasopharynx. The placenta exhibited a velamentous insertion of the cord. Upon examining the cut surface of the cord only two vessels were apparent. Histological sections later confirmed

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the absence of an artery. Because of the single umbilical artery the infant was examined immediately by a pediatrician who passed a catheter into what was thought to be the stomach, but since its true location could not be definitely established, the baby was placed in a head-down position overnight and feeding was withheld. Because of the persistence of an inordinate quantity of mucus the following morning, a nasal catheter was passed into the esophagus and a small amount of water soluble radiopaque material was introduced under fluoroscopy. An obstruction of the proximal esophagus at the level of T-4 was demonstrated. The stomach and intestine were noted to contain air, thus establishing the diagnosis of tracheoesophageal fistula. At thoracotomy that same day, the distal segment of the esophagus was found to communicate with the trachea at the carina. A successful esophageal anastomosis was accomplished. The baby has been discharged from the hospital, is gaining weight, and has shown no evidence of other abnormalities.

DISCUSSION

In the presence of gross malformation the absence of an umbilical artery is obviously of little practical value. However, when no external manifestations are apparent, this defect, which can be detected in the delivery room, should alert the physician to the possible existence of internal abnormalities. The range of associated anomalies which have been reported is broad and not confined to any one organ system. Its occurrence may be more common than currently appreciated as evidenced by the incidence of 1% in Benirschke's consecutive, unselected series.[3] The absent umbilical artery can provide the first clue in the diagnosis of an internal congenital deformity.

CONCLUSIONS

All umbilical cords should be checked for the single umbilical artery. The single umbilical artery suggests the need for early investigation of possible hidden congenital anomalies. In this presentation, the diagnosis prior to feeding facilitated the handling of the infant's anomaly.

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GILES VIRUS causes aseptic meningitis and occasional paralysis and may have an affinity for the central nervous system. Slight or abortive virus infection appears usual in children, with aseptic meningitis more likely in young adults. Stiff neck is a common symptom, and stiff back, headache, fever, vomiting, and lethargy often occur. Lumbar puncture is indicated when photophobia is paired with severe headache. White blood cell counts in the cerebrospinal fluid most often are under 100. Giles virus, a recently recognized enterovirus, was considered responsible for 58 cases of aseptic meningitis in Minnesota in 1960; 3 patients had varying degrees of paralysis, but recovery was quite rapid with little or no residual involvement. The highest attack rate was in the 20- to 24-year age group. Among household contacts of patients, symptoms suggestive of slight or abortive virus infection were recorded for 5 of 68 adults and 31 of 114 children.

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The Inexorable Malignant Thymoma

Report of a Case Managed with Surgery, Radiation, and Drugs

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TUMORS OF THYMIC ORIGIN may be highly malignant and therefore require prompt diagnosis and aggressive treatment, which consists primarily of surgical excision and external radiation. Recurrence of tumor following incomplete removal and maximum radiation therapy, however, may raise difficult problems in patient management. It is the purpose of this paper to report on such a case of malignant thymoma, to discuss some novel aspects of the treatment employed, and to review briefly the literature on this subject.

CASE REPORT

This 45-year-old white male was apparently in good health until 1953, at which time a routine chest film revealed an asymptomatic mass in the anterior superior mediastinum (Fig. 1). Physical examination at that time was entirely within normal limits, as were all the usual laboratory studies. Surgical exploration of the anterior mediastinum in November 1953 revealed a lobulated tumor of the thymus gland, intimately attached to the mediastinal pleura and extending around the great vessels. The right phrenic nerve was severed, and a section of the superior vena cava was removed in an attempt to completely excise the mass. Complete resection was impossible, however, because of extensive invasion of the wall of the superior vena cava.

Pathological examination of the thymic mass revealed a locally invasive thymoma, measuring 5 × 4 × 3.5 cm., with direct spread into the retrosternal fat, forming a gross mass 10 × 6 × 2 cm. in size. The neoplasm was pinkish-gray and was composed of lobules incompletely separated by dense fibrous septa. The microscopic appearance may be seen in figures 2A and B.

Because the tumor was known to have been incompletely resected, the patient was given a postoperative course of external radiation, in a total dose of 5,500 r. to the anterior mediastinum.

For three years the patient was entirely asymptomatic, and X-rays at three-month intervals remained negative until November 1956 when the tumor could be seen extending laterally to the left from the superior mediastinum. The tumor mass promptly regressed after external radiation to the anterior mediastinum, in a total dose of 4,500 r. Two years later, in September 1958, there was a second recurrence, now with symptoms of compression of the superior vena cava, manifested by dizziness and neck vein distension. A hard, fixed mass could be palpated behind the medial portion of the left clavicle, and a chest film revealed extension of the mass into the superior mediastinum. External radiation again resulted in prompt regression of the tumor mass (total dose of 5,500 r.).

In November 1959, one year after the last course of external radiation and six years after initial diagnosis, the patient again experienced recurrence of thymoma, now with symptoms of tracheal compression. (Fig. 3A). Because of the previous massive doses of radiation which had already resulted in significant pulmonary fibrosis, it was decided to attempt to suppress the thymoma with drugs. The patient was hospitalized and given nitrogen mustard (mechlorethamine hydrochloride [Mustargen]), 7.6 mg. daily for four days, by the intravenous route. This was followed by prompt remission of symptoms, and the X-ray evidence of regression of the tumor mass is shown in figure 3B. For clarity, a chronologic summary of antitumor therapy has been set out in table 1.

In February 1960, four months after the initial course of nitrogen mustard, the patient was hospitalized with bilateral lobar pneumonia which responded to appropriate antibiotic therapy. X-ray again revealed recurrence of the tumor mass, however, and the patient was given a second course of nitrogen mustard, 8 mg. daily for four days. Five weeks later the patient required a third course of the drug, 8 mg. for four days, in order to relieve respiratory embarrassment secondary to tracheal compression by the expanding tumor mass.

With each four-day course of nitrogen mustard, the patient received 40 units of ACTH gel daily. Side effects from nitrogen mustard therapy included nausea, vomiting, and moderate progressive anemia. Before receiving this drug, laboratory examination revealed a hemoglobin of 14.3 gm. per 100 ml. and a hematocrit of 42%, with normal white cell and platelet counts. Following the third course of nitrogen mustard, the hemoglobin had dropped to 11.3 gm., hematocrit was 35%, and the white cell and platelet counts remained normal. In each instance, the patient responded dramatically to the drug, with complete relief of symptoms and X-ray evidence of regression of the tumor mass. Unfortunately, the duration of each period of remission became progressively shorter.

Therefore, in May 1960, when the patient again developed symptoms of tracheal compression, he was given streptovitacin, in a total dose of 128,400 μg. over a four-week period. Administration of this antibiotic was accompanied by severe nausea and vomiting and, as the patient's respiratory distress became progressively more severe, it was necessary to discontinue the drug.

In June 1960 the patient was started on oral uracil mustard (5-[bis(2-chloroethyl)amino] uracil), 1 mg.

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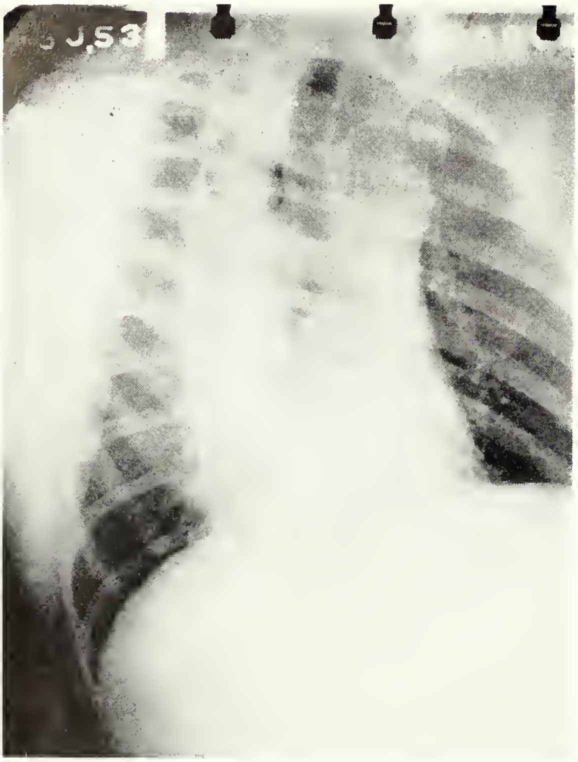

Fig. 1. Lateral oblique film of chest showing first evidence of tumor in anterior superior mediastinal space

daily. This dosage was gradually increased over a three-week period to 3 mg. daily. At first the patient responded slowly to this drug and on 2 occasions required, in addition, 10 mg. of nitrogen mustard for relief of marked dyspnea. Although uracil mustard was continued until September 1961 the dose had to be decreased gradually and even discontinued intermittently because of severe bone marrow depression which necessitated the transfusion of fresh whole blood on several occasions. During this period the patient received adrenal cortical steroids regularly. Uracil mustard was found to be effective in suppressing growth of the thymoma. With the exception of the 2 occasions mentioned above, the patient remained essentially asymptomatic, and chest films at regular intervals over the fifteen-month period revealed no recurrence of the tumor until September 1961, at which time the drug was discontinued.

The patient was hospitalized following discontinuance of uracil mustard for a course of thio-TEPA (triethylenethiophosphoramide). Hemogram on admission revealed: hemoglobin, 10.5 gm.; hematocrit, 30%; white cell count, 5,083 per cubic millimeter; and platelet count, 90,600 per cubic millimeter. The patient received thio-TEPA, 15 mg. intramuscularly daily, for five days. Adrenal cortical steroids were continued. The patient experienced dramatic relief of respiratory symptoms but developed fever, transient nausea, and vomiting. There was marked bone marrow depression following therapy, with decrease of all cellular elements and platelets in the peripheral blood and the appearance of numerous petechiae on the extremities.

Two weeks after the course of thio-TEPA, the patient was hospitalized with bilateral lobar pneumonia and septicemia, secondary to hemolytic, coagulase-positive Staphylococcus aureus. He was anemic and had the following laboratory findings: hemoglobin, 8 gm.; hematocrit, 24%; white blood cells, 3,300; and platelets, 37,500 per cubic millimeter. Treatment with fresh whole blood, appropriate antibiotics, corticosteroids, and gamma globulin rendered him asymptomatic in about ten days. Laboratory studies before discharge revealed: hemoglobin, 10 gm.; hematocrit, 29%; white blood cell count, 4,750; and platelets, 128,080 per cubic millimeter.

One week after discharge the patient again developed marked inspiratory and expiratory stridor, secondary to recurrence of his malignant thymoma. In an attempt to give him more permanent relief, he was readmitted, and a course of 2 million-volt X-ray therapy was begun. He received a total of 9 treatments and became completely free of dyspnea. Before the course of treatment could be completed, however, the patient again developed bilateral lobar pneumonia (Fig. 4). Sputum grew out pure cultures of Klebsiella pneumoniae. Despite all efforts the patient grew steadily worse and died on January 10, 1962.

The salient findings at necropsy were limited to the thorax, as follows: Gross examination of the serous cavities revealed firm pleural adhesions involving the posterior aspect of the left upper lobe, marked reduction of the right pleural cavity due to elevation of the right hemidiaphragm, and partial obliteration of the upper portion of the pericardial sac around the great vessels, with dense adhesions.

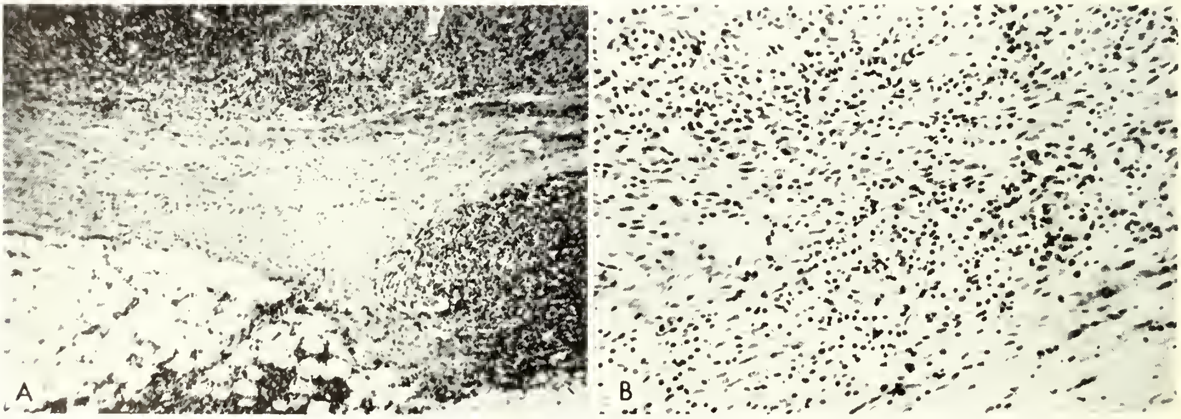

Fig. 2A. Surgical specimen showing tumor. Hematoxylin and eosin, × 35. B. Greater magnification shows pleomorphic cell pattern composed mainly of primitive epithelial cells, thymocytes, rare plasma cells, and eosinophils. × 100

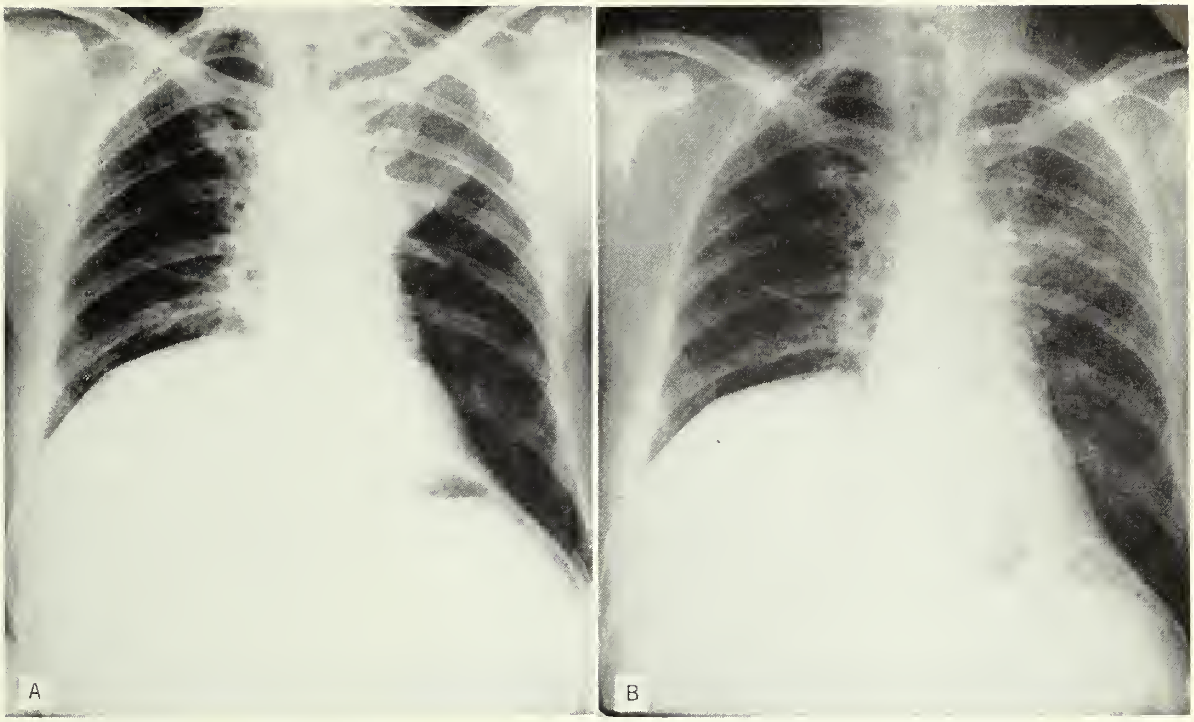

Fig. 3A. Posteroanterior view of chest showing radiopaque infiltration in left upper lung field. Before nitrogen mustard. B. After nitrogen mustard

The anterior mediastinum was markedly fibrotic and focally calcified, with dense fibrosis surrounding the hilus on either side, producing some compression of the superior vena cava, with distortion of the right bronchial tree and marked induration of the left main bronchus. Sections from the anterior mediastinum showed extreme fibrosis, with dense hyalinization and focal zones of calcification. Sections of the trachea and bronchi showed focal zones of neoplastic change, with the pleomorphic cell pattern shown in figure 5A.

The lungs were greatly increased in weight, weighing 1,900 gm. There was diffuse lobar pneumonia involving the entire left lung and the upper and middle lobes of the right lung. A zone of infarction, measuring 5 × 4 cm., was present in the right lower lobe. Sections of the lungs (Fig. 5B) showed extreme pneumonic change with much exudate filling the alveoli. In several areas the lungs showed fibrinoid necrosis, as well as areas of necrosis undergoing fibrosis, interpreted as secondary to radiation effect.

The heart weighed 290 gm., and, with exception of dense fibrous adhesions involving the pericardium and epicardium, no abnormalities were noted.

DISCUSSION

In many cases, including the one reported here, malignant thymomas produce no symptoms

TABLE

Date	*Therapy*	*Remission*	*Side effects*
Nov. 1953	Surgical excision of tumor Postoperative radiation (5,500 r)	3 years	
Nov. 1956	Radiation (4,500 r)	2 years	
Sept. 1958	Radiation (5,000 r)	1 year	Pulmonary fibrosis
Nov. 1959	Nitrogen mustard (30 mg.)	4 months	
Feb. 1960	Nitrogen mustard (32 mg.)	5 weeks	Anemia
April 1960	Nitrogen mustard (32 mg.)	4 weeks	Nausea, vomiting
May 1960	*Streptovitacin (128,400 μg.)	None	Nausea, vomiting
June 1960	*Uracil mustard (variable)	15 months	Nausea, vomiting Bone marrow depression
Sept. 1961	Thio-TEPA (75 mg.)	3 months	Nausea, vomiting Bone marrow depression
Dec. 1961	Radiation (not completed)		

*Supplied as an investigational drug

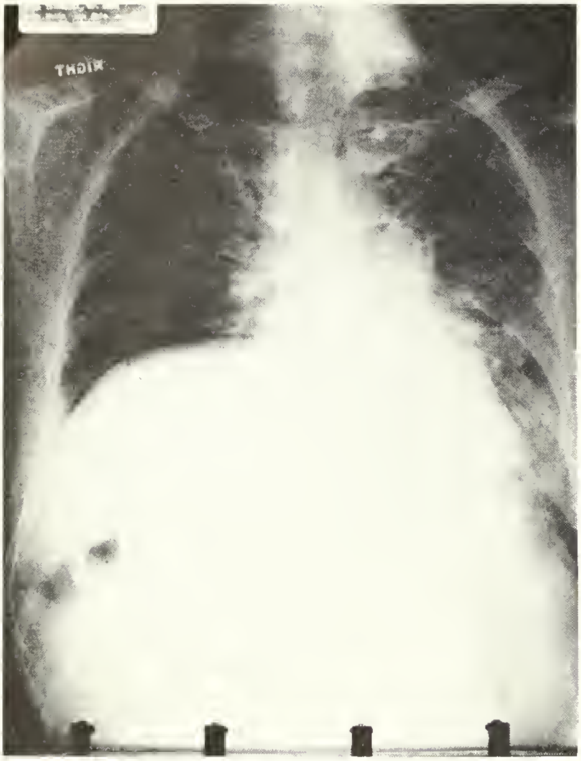

Fig. 4. Posteroanterior view of chest during final admission, compatible with bilateral lobar pneumonia

and are discovered when an anterior mediastinal density is noted on routine chest X-ray. Some are diagnosed after the onset of myasthenia gravis. On the other hand, patients may present with symptoms secondary to invasion or compression of vital mediastinal structures, lungs, or pleura.

Biopsy or exploratory thoracotomy is usually essential to establish the thymic origin of the tumor. Most authors point out that differentiation of a benign thymoma from a highly malignant one is difficult, if not impossible, on the basis of the histological characteristics of the tumor.[1–5] Effler and McCormack[5] reported 2 patients with histologically "benign" thymomas, for example, who developed metastatic lesions several years after initial diagnosis and therapy. These authors stress that the establishment of malignancy must depend on the consideration of a constellation of factors, including the histopathology of the tumor, its invasion of surrounding structures, and the tendency to recur after therapy and to metastasize. The incidence of malignancy in thymic tumors is controversial; however, Castleman[6] found the incidence to be approximately 25%.

Reports concerning the little-understood association between thymomas and myasthenia gravis have been conflicting. Some authors are of the opinion that myasthenia gravis is rarely seen with thymic neoplasms.[4,7–10] LeRoux,[10] for example, reported the absence of myasthenia gravis in all cases in his reported series. In a comprehensive review of the literature, however, Morgan and Dudley[11] found the incidence to be approximately 80%. In the Mayo Clinic experiences, 64 of 138 patients had the 2 conditions coexisting (46%).[8] Effler and McCormack[5] reported 16 cases of malignant thymoma, 6 of which were associated with myasthenia gravis. There have been reports relating the onset of myasthenia gravis to the removal of thymomas.[12–15] Although the relationship is therefore not clear-cut, the concomitant occurrence of these 2 unusual conditions in so many patients would support the wisdom of careful study and follow-up of patients with malignant thymoma for the presence or possible subsequent development of myasthenia gravis, and vice versa.

Other uncommon conditions have also been reported in association with thymomas. Agammaglobulinemia[16–18] and aregenerative anemia[19–24] have been reported in patients with thymic tumors; however, these were usually benign. Castleman and Norris[6] reviewed 8 cases of Cushing's syndrome reported in association with thymic neoplasms. In all these patients the thymoma was histologically of the adenocarcinomatous type, with a preponderance of epithelial cells and only scattered lymphocytes. Four cases of granulomatous myocarditis have also been reported in patients with thymoma, both benign and malignant; in one there were also repeated false-positive lupus erythematosus cell preparations.[25] Altogether, then, pending more data, perhaps coincidence best explains the simultaneous occurrence of these conditions.

Malignant thymomas are usually confined to the thorax—as was true in our case—and spread by direct invasion and implantation with involvement of the lungs, pleura, and vital mediastinal structures. Lymphatic and hematogenous metastases are extremely rare.[1,6,8,11,26,27] However, cases have been described by Boyd and associates,[28] Castleman and Norris,[6] Morgan and Dudley,[11] and Erichsson and Hook,[1] in which the tumor spread by extension through the diaphragm, with formation of tumor masses within the abdomen. In the last patient cited there were also tumor implants in the pelvic peritoneum. Patients with hematogenous embolic metastases have been described by Morgan and Dudley,[11] in whom a solitary tumor nodule was present in the right lobe of the liver, and by Erichsson and Hook,[1] in whom tumor nodules were found in the liver and both kidneys. A patient has been

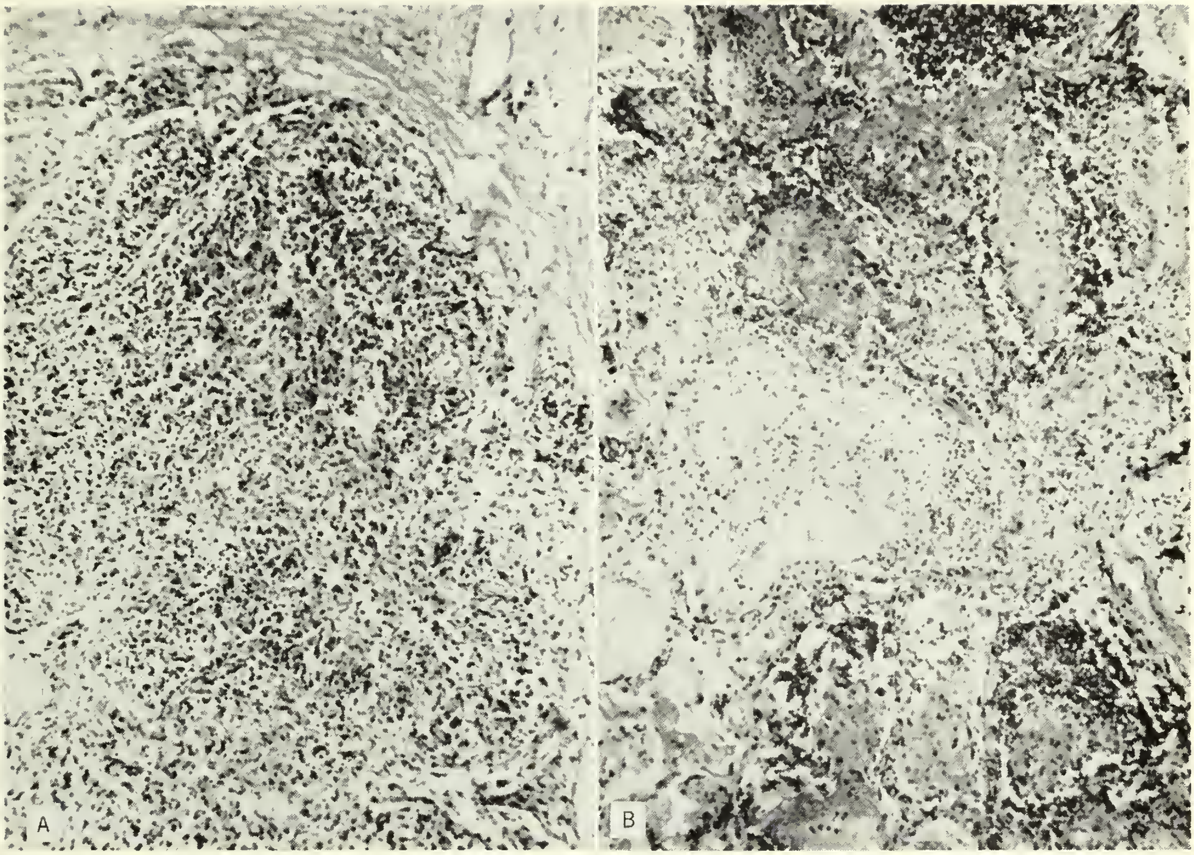

Fig. 5A. Focal area of neoplastic tissue consistent with a thymoma of Hodgkin's type. Hematoxylin and eosin, × 35. B. Section of lung showing pneumonic changes. K. pneumoniae isolated in pure culture. Hematoxylin and eosin, × 100

reported by Effler and McCormack,[5] in whom a submaxillary lymphatic metastasis occurred.

Because of the high malignant potential of these neoplasms, most authors recommend immediate exploration and complete resection of all thymic tumors if at all possible.[5,8,15,28] There is much debate regarding postoperative radiation therapy. Some authors recommend postoperative 2 million-volt X-ray therapy routinely in all cases of thymic tumor[5,29] even though the radiosensitivity of a given neoplasm cannot be predicted with certainty.[5] Others advise it only in cases where there has been extension through the capsule and the tumor cannot be completely resected.[8,15,28]

In the patient who survives initial surgery and maximum radiation therapy, other forms of treatment must be used with subsequent recurrences. Unfortunately, very little has been written regarding the alternatives.

The thymolytic effect of ACTH and various other hormones has been described, but clinical evaluation of the effectiveness of these agents in suppressing growth of thymic neoplasms is limited.[30–32]

In the series presented by Effler and McCormack,[5] 2 patients received nitrogen mustard therapy. One patient received combined X-ray therapy and nitrogen mustard, with good initial response, but died in myasthenic crisis two and one-half years later following surgical excision of the thymoma after the development of metastases. The second patient received nitrogen mustard postoperatively, followed in two months by X-ray therapy. There was progressive deterioration, however, and the patient was subsequently lost to follow-up. Two patients in this series received cobalt therapy with good initial response, but the long-range outcome of therapy was not discussed by the authors. Erichsson and Hook[1] treated one patient with radioactive phosphorus but observed no definite beneficial effect.

In the case under discussion, the treatment summary in table 1 shows that after surgery and maximal radiation, 3 drugs were able to produce relief of symptoms and regression of tumor. Nitrogen mustard was the first of these, but each of the 3 courses resulted in a shorter remission. Uracil mustard, a drug not previously reported on in this condition, was then used to maintain the patient for fifteen months. Although, according to Goodman and Gilman,[33] "all [nitrogen mustards] studied exert ubiquitous actions, all have a relatively low therapeutic index, and none has proved to be superior to mechlorethamine for therapeutic application," uracil mustard had the real advantage of being effective by the oral route of administration. Thio-TEPA then produced regression of the tumor for about three months, but, nevertheless, each of these agents was able to arrest the inexorable progress of the tumor only temporarily. It was noteworthy that the patient was able to work daily as a public works engineer throughout his illness, except for periods of time in the hospital.

SUMMARY

The case has been reported of a patient with a malignant thymoma. Our experience, and that of others reported in the literature, emphasized the therapeutic dilemmas which may arise in the management of such patients. Complete surgical removal was found to be technically impractical. External radiation held the tumor in check, but after 3 courses of treatment the threat of pulmonary fibrosis made it unwise to give more. Similarly, mechlorethamine, uracil mustard (oral), and thio-TEPA all induced remissions of the tumor but at the same time depressed the bone marrow; it seemed likely that the resulting granulocytopenia may have made him liable to fulminating Klebsiella pneumoniae pneumonia, the immediate cause of death. Although this outcome was inevitable, the use of these measures enabled the patient to survive over eight years after the diagnosis was made and to be productive and comfortable during most of that time.

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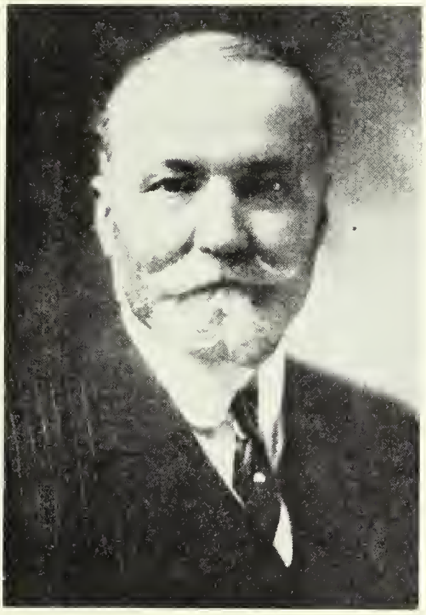

My Years with
Dr. John B. Murphy

JAMES A. JOHNSON, M.D.
Minneapolis

JOHN B. MURPHY was born on December 21, 1857, in a log cabin about 4 miles west of Appleton, Wisconsin, the youngest of 5 children. His hard working father saw to it that the boys were kept busy. A devoted mother brought them up in the philosophy of temperance, honesty, and thrift.

THE TWIG IS BENT

After attending country school, John went on to the high school at Appleton, where he came under the influence of R. H. Schmidt, a recent graduate of the University of Wisconsin, who was a realist, a logician, a good teacher of chemistry, and a forceful speaker. He was a great stimulus to the boys who attended his classes and his debating society. The Murphy family doctor, Dr. H. W. Reilly, of Appleton, became one of Murphy's heroes and later his preceptor in medicine. After studying anatomy and physiology in Dr. Reilly's office, John entered Rush Medical College. A medical course at that time consisted of two years of lectures only.

At the medical school his professor of chemistry was Professor Walter S. Haines, who became his ideal in medical teaching. From Professor James Adams Allen he learned that symptoms were external manifestations of the progress of underlying pathology—a dictum he made his own. A third major influence at the school was Dr. Moses Gunn, prominent surgeon in Chicago, who insisted that prompt action should be taken in surgery for proper results.

Dr. Murphy was graduated in 1879 and entered Cook County Hospital as an intern. There he met Dr. Edward W. Lee, a graduate of the University of Dublin. Upon completion of his internship, Dr. Murphy became a partner of Dr. Lee.

SURGICAL TRAINING

Medical practice in Chicago at that time was not on a high level. Tuberculosis, typhoid fever, and many infectious diseases were rampant and treatment was not of much avail. Surgery was mostly limited to accidents and to infections and lesions on the body surface. However, a new era was dawning. In Europe in 1879 Robert Koch had laid the foundation for bacteriology by growing bacteria on artificial media. With the microscope this soon opened the door to identification of a large number of organisms causing various diseases.

John Murphy was apparently not satisfied. During the time that he had been an intern in Cook County Hospital he had also come in contact with Dr. Christian Fenger, who had come to the United States from Denmark. He was an excellent pathologist and bacteriologist and was well grounded in the basic medical sciences. It was his custom to invite the interns from Cook County Hospital to his home where he would discuss various phases of medicine with them. Fired by Dr. Fenger's talk about Vienna, Heidelberg, and other foreign medical centers, Murphy went off to Europe in September 1882.

Dr. Murphy studied under Dr. Billroth, a pioneer in stomach surgery, under Carl Schroeder, a gynecologist in Berlin, and then under Julius Arnold, a pathologist in Heidelberg. Dr. Murphy returned home in the spring of 1884 and resumed practice with his former partner, Dr. Lee.

In 1885, Dr. Lee, who had a large practice, sent Dr. Murphy to make a call on the Plamondon family, whose daughter, Jeanette, had typhoid fever.

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He continued to see his patient after recovery was complete and on November 25, 1885, he and Jeanette were married.

On May 4, 1886, occurred the great hay market riot in Chicago in which many policemen were injured and killed. Dr. Murphy was called to help with their care at the Cook County Hospital and, as a result, received considerable publicity, with his name mentioned daily in the newspapers.

THE SURGICAL PIONEER

Not a great deal was known about corrective surgery at that time. Most of the patients were those who came with late lesions and large abscesses from infections and those who had been hurt in accidents. The abdomen was still too dangerous an area for surgery. One evening while making rounds, Dr. Murphy found that a patient, hospitalized for a fracture, had a pain in the right lower abdomen. Murphy recognized that the man had acute appendicitis, operated on him, and removed an appendix filled with pus, yet not ruptured. The man recovered. Within two years Murphy had operated upon 250 patients with appendicitis, and on November 18, 1889, he read a paper on appendicitis before the Chicago Medical Society advocating early operation within the first twenty-four hours and holding the profession responsible if they neglected early operation. This strong statement was followed by a great deal of criticism. Who was this young man to tell the profession what to do?

After many years of hard work Murphy began to lose weight, felt tired, and, because of his family history, he naturally feared tuberculosis. He therefore left his practice and went to Colorado to recover. After returning to Chicago he became professor of surgery at the College of Physicians and Surgeons.

Long anxious to make some improvements in abdominal surgery where there were so many lesions and so much danger, particularly in bowel resection, he began to work on a method of anastomosis and by June 1892 he had perfected the Murphy button. In December of 1892 his first paper was given on the use of the button in the surgery of dogs and patients. Murphy at once achieved world recognition and in 1894 was asked to present papers in such places as Rome, Paris, and England.

In the meantime his old friend and teacher, Dr. Christian Fenger, now professor of surgery at Northwestern University Medical School, had moved to the south side of Chicago. Upon his invitation, Dr. Morgan joined Dr. Fenger and Dr. Murphy in their work at Mercy Hospital. Dr. Fenger apparently admired Dr. Murphy and saw in him great potentialities; he advised Murphy to engage in various fields of surgery.

He began on the brain and reported several operations on the gasserian ganglion. Later he experimented with end-to-end anastomosis of the arteries and did a successful end-to-end anastomosis of the femoral artery. Because of these advances, he was asked to come to Moscow at the Surgical Congress in 1897. On June 9, 1898, he injected nitrogen gas into the pleural cavity to collapse the lung in a tuberculous patient and later reported on 18 cases in which this treatment had been tried.

About 1900, he performed a good deal of renal, brain, and spinal cord surgery and also surgery of peripheral nerves. In all these areas, he wrote quite extensively. For a short time, he became professor of surgery at Rush Medical College, but it was not long before he returned to Northwestern University as professor of surgery and chief of the department. Also at this time his animal laboratory was moved to Northwestern Medical School. At his request, an outpatient clinic was erected adjacent to the hospital to augment teaching material.

At this time, orthopedic surgery consisted mostly of applications of casts and manipulation of joints. Operative surgery was being done in England by Sir Arbuthnot Lane, who applied metal plates to hold fractures in a more anatomical position. In our country there were many people crippled from deformities as a result of nonunion or malunion of fractures. There were also many with ankylosis of joints, either due to accidents or some type of infection. Dr. Murphy began experimenting on ankylosis of joints and developed the operation of arthroplasty.

At this time he was also active in medical societies. With Drs. William Mayo, Cushing, and others, he organized the Society of Clinical Surgery and was also one of the organizers of the Clinical Congress of North American Surgeons.

Murphy was subject to sore throats and bronchitis and, as usual, at the beginning of March 1911, he left on his vacation to Florida. While there he contracted typhoid fever and was very ill. Nevertheless, he was able to give his presidential address at the A.M.A. meeting held in Los Angeles in June.

ASSOCIATION WITH DR. MURPHY

In late summer of 1910 I came to Mercy Hospital as an intern and my first assignment was with Dr. William E. Morgan. Later I was transferred to the Murphy service and began my years with Dr. Murphy at the Murphy Clinic. For a short time I served as intern and then as his house surgeon and assistant.

It was my duty to make early morning rounds, to assist at all operations, to make afternoon rounds on the patients recently operated upon, to keep in mind photographing of various patients whose histories might be suitable for publication, and then, later, to make evening rounds. After early morning rounds, I met Dr. Murphy at the front door at 8:15 A.M. and as we walked toward Room 100 he would say, "Well, Doctor, how are the patients?" I would give him a list or tell him of the ones I thought he ought to see. When we arrived at the operating room at 9 o'clock, there were usually 8 to 15 or more patients awaiting surgery. We finished at 1:30 to 2 P.M.

We had lunch in Room 100 and while Murphy ate we discussed the list of cases for the coming day. In Room 100 I had an opportunity to meet many of his personal friends including Archbishop Reardon of San Francisco, Dr. Norman Bridge, a kindly old gentleman who had left Chicago in the early days and built up a fortune through oil investments, and Dr. William Augustus Evans, health commissioner of Chicago.

In the evening I made rounds on all the patients, made a list of the ones I thought Dr. Murphy should know about, and then called him at his home promptly every night at 10 o'clock. During the last year, 1914, Mrs. Murphy would often answer the telephone and say, "May I take the message, please, because Doctor has already gone to bed. He seemed to be very tired." Between the two of us we would often arrange the lists so that it would not be quite as hard the following day.

THE STUDENT CLINIC

Dr. Murphy devoted Monday and Thursday mornings to the student clinic, which, like all the clinics, was held in the large amphitheater. He rarely did any surgery except emergencies during that period. It was essentially a diagnostic clinic. The entire class was always there on time. His method was to ask 4 or 5 students from various parts of the amphitheater or in adjoining seats to come down. He would begin by quizzing the students on the patient's problem, with the patient there in the amphitheater.

Syphilis was not uncommon in those days. I remember one day such a case appeared in the ward. The patient had all of the symptoms of repeated gallbladder attacks which came from the lesion in the spine. During the usual interrogation of the students, a diagnosis of gallbladder disease was volunteered, for which surgery was recommended. He asked them to describe the surgery, which they did from beginning to end. Then his answer was, "Then what? Tomorrow or the next day he will have the same attacks, Doctor, then what? Doctor, you haven't examined your patient. You haven't taken a history! This trouble can be diagnosed easily by the history and examination." Then he said, "Doctor, look at his eyes. He has frozen pupils," and to the patient, "When did you have your lesion?" The patient answered that it was a certain number of years ago. It was a clear diagnosis of gastric crisis as a result of tabes dorsalis.

Dr. Murphy's main object was to encourage the students to investigate, to think, and to be sure of their diagnosis before they advised treatment. The entire student year was given over to diagnostic problems, mostly of a complicated nature, with the discussion always stressing what was best for the patient. Murphy's dictum was, "It is results that count." I am sure he enjoyed the student clinics. It was there he felt he could help students to become good diagnosticians and surgeons.

CLINICS FOR VISITING DOCTORS

On Wednesdays and Saturdays, there were clinics for visiting doctors. On Tuesdays and Fridays there were dressings and careful rounds on all patients. Patients were brought to a room on the upper floor where the dressings were done and results demonstrated to visiting doctors. The regular operative clinics were held in the amphitheater which seated about 500, and a daily attendance of doctors without the students was about 100 to 150.

The clinics began with the intern reading the history and results of the physical examination. These were thoroughly discussed and a diagnosis arrived at before the operation was begun. The intern was allowed no excuses for not having the history and physical examination ready before the operation. An intern might say that the patient came in too late and that he had no time to get the history. The answer was, "Get up early in the morning, Doctor. That's what I had to do." Another excuse often offered was, "The patient could not speak English." "Doctor, hunt around for someone who can speak his language. There are many languages spoken in the hospital and also out in the yard among the help. Doctor, there are no excuses. Think."

The clinics for doctors were different from those for students in that an operation was performed. While the patient was being anesthetized in a separate room, the history was read by the intern, the physical examination and laboratory and x-ray findings were analyzed, and a diagnosis was read. Then the operation was begun, and a step-by-step explanation of the technique and pathological findings were given as the operation progressed. Then, as the wound was being closed, Dr. Murphy dictated the findings and procedure in the operation and the final sentence was, "Sister Victorine reports the sponges counted and correct and I have personally examined the wound."

Between cases Dr. Murphy would talk to the doctors about the patient upon whom he had just operated or about procedures of various types.

The visiting doctors came not only from various parts of the United States but from all over the world—from South America, Canada, England, France, Australia, and so on. There were addresses by several of these men such as Sir W. Arbuthnot Lane of London. On September 23, 1912, I had the honor of first assisting this famous surgeon in applying a plate to a fracture of the femur. He also, at that time, in connection with the operation, gave a talk on the operative open treatment of fractures.

The associates and assistants of Dr. Murphy were Drs. John F. Golden, Phillip H. Kreuscher, George W. Hochrein, and James A. Johnson. Sister Victorine was surgical nurse and was assisted only by a student nurse. Sister Victorine was calm, efficient, and devoted to her duty. She anticipated Dr. Murphy's wants, and instruments flowed to his hands as he needed them. Sister Ethelrede gave all the anesthetics. Only ether was used. The anesthetic was begun in an adjoining room and the patient was completely under anesthesia when brought into the amphitheater. The cases covered almost all branches of general surgery. I have never seen better surgical technique.

The most spectacular work I believe we did was arthroplasty of the joints and bone transplants. For example, when complete bony ankylosis was present in a knee, hip, or jaw we could chisel it out and place a flap of fat and fascia between the new joint surfaces and with proper exercise produce a well functioning joint. This was particularly true of the hip, knee, and also the jaw. We transplanted a great deal of bone for ununited fractures and for areas where tumors had been removed from the bone leaving a defect. I can recall that we kept in touch with 100 patients who had had bone transplants and there was not a single case of infection.

During the last year I was with Dr. Murphy, he practiced almost exclusively the Lane technic. Nothing touched the wound but the sterile instrument and as soon as an instrument had been used it was resterilized. Even the ligatures were tied with instruments.

MURPHY'S PHILOSOPHY OF MEDICINE

What manner of man was Dr. John B. Murphy? He was a large man about 6 ft., 2 or 3 in. tall, with fairly broad shoulders, dark graying hair that was scant on top, a large dark graying mustache, and a chin beard parted in the middle. All people who knew him in the early days said his hair was red but there was nothing of that now. He walked fast, thought fast, talked fast. He was logical and quick to comprehend every problem. His philosophy was well defined. There was a very fine line between what was right and what was wrong, and he spoke what he considered to be right. One might be surprised for the first time to hear the voice of this large, well-groomed man as he came into the amphitheater. It was shrill, high-pitched, clear as a bell, but perfect in modulation. However, as he continued to talk his voice assumed a more normal tone. He could be a showman and be dramatic to the point where it was really touching. His energy was such that almost no one could keep up with him. Everyone said the man would burn himself out earlier than he should.

He had a philosophy that he lived by, and I think it would be well for everyone to consider it and to try to profit by it. One of his sayings was that, "The sin of omission is as great as the sin of commission." "Your responsibility in the profession is great, don't neglect it." He said to me, "Doctor, you must be ahead of the crowd in your profession, not far ahead, then you will not be accepted, but at least one lap ahead. Then you will be noticed. Don't try to tear down the reputation of your colleagues in the profession. There are many of them and only one of you and you not only will be rated as a small man, but worse—you will dissipate your energy which should be employed in building up yourself. Use all of the energy you have to build yourself up. You must keep abreast of the advance in medical literature or you will soon be behind. There is no excuse for not knowing."

Dr. and Mrs. Murphy gave a farewell dinner for me at their home at 3305 Michigan Avenue. Members of the staff were present such as Dr. Golden, Kreuscher, and Hochrein. As we parted, Dr. Murphy thanked me for my conscientious care of his patients and our years of pleasant association. This was the last time I saw him alive.

When I moved to Minneapolis there was considerable correspondence regarding some patients and other matters. I knew that he had had a heart attack because one day in 1913 while we were making rounds he had a severe pain over his chest and down into his left arm. I took him into one of the rooms and had him lie down for a while. His work was canceled for the day. Apparently these attacks did not last long and he was able to fight them off, but in April 1916, after an attack of severe streptococcal sore throat, the anginal attacks became much worse and were not controllable. He was unable to do any work after this, and, on August 10, 1916, he died at Mackinac Island at the aged of 58.

CONCLUSIONS

Dr. Murphy was probably one of the hardest working surgeons this country has seen. It seems almost impossible that one man could accomplish so much research and productive work in so short a time. He not only excelled as a teacher of surgery but his philosophy of a doctor's responsibility to his patient was the most profound I have ever heard. Because of this he not infrequently was criticized by his colleagues. He had a clear concept of what was right and what was wrong and he spoke accordingly.

Dr. Murphy was a one-man clinic and a great personality. His teaching and philosophy were passed on not only to his students and assistants, but to the physicians from various parts of the world who attended his clinics.

Presented a number of years ago at a surgical historical seminar under the auspices of the Department of Surgery at the University of Minnesota. The title was "John B. Murphy as Teacher."

The Journal-Lancet

SERVING THE MEDICAL PROFESSION OF MINNESOTA, NORTH DAKOTA,
SOUTH DAKOTA, AND MONTANA

INDEX TO VOLUME 84

January 1964 through December 1964

SUBJECT INDEX

A

Adolescent problems (Wallinga) 1 (Jan.)

Analgesia
  in cancer, hazards (Lundy) 15 (Jan.)
  see also Pain; Pain and Distress Section

Anesthesia, muscle relaxants preceding (Mathewson) 241 (July)

Antibiotics for gram-negative bacteremia (Martin & McHenry) 389 (Nov.)

Aorta, absence of arch with patent ductus arteriosus, biventricular origin of pulmonary artery, interventricular septal defect: case report (Reidbord) 339 (Oct.)

Arteries
  internal iliac ligation for pelvic hemorrhage (Burchell) 97 (Mar.)
  umbilical, absence as clue to other congenital anomalies (Magary et al.) 485 (Dec.)
  see also Coronary artery

B

Bacteremia due to gram-negative bacilli (Martin & McHenry) 385 (Nov.)

Biliary tract, common duct obstruction by pancreatic cyst (Pilot et al.) 204 (June)

BIOGRAPHIES
  Amberg, Ray M. (Gilman) 207 (June)
  Balfour, Donald Church, M.D. (Eckman) 177 (May)
  Bell, Tommy, M.D. (Myers) 237 (July)
  Boynton, Ruth Evelyn, M.D. (Shepard) 355 (Oct.)
  Cowling, Donald J. (Myers) 274 (Aug.)
  Huenekens, E. J., M.D. (Seham) 245 (July)
  Larson, Ernest J., M.D. (Nierling) 106 (Mar.)
  Lees, Harry DeWitt, M.D. (Myers) 310 (Sept.)
  Moore, John Harris, M.D. (Grinnell) 149 (Apr.)
  Murphy, John B., M.D. (Johnson) 493 (Dec.)
  Rodda, Fred Constans, M.D. (Seham) 418 (Nov.)
  Waring, James Johnston, M.D. (Myers) 4 (Jan.)

BOOK REVIEWS
  Ackerman & Butcher: Surgical Pathology 16A (Dec.)
  Adriani: Appraisal of Current Concepts in Anesthesiology 242 (July)
  Agress & Estrin: Biochemical Diagnosis of Heart Disease 14A (Mar.)
  Allen: May's Manual of Diseases of the Eye 16A (Mar.)
  Bellet: Clinical Disorder of the Heart Beat 14A (Apr.)
  Bernreiter: Electrocardiography 12A (Feb.)
  Beutler et al.: Clinical Disorders of Iron Metabolism 20A (July)
  Birren et al.: Human Aging: A Biological and Behavioral Study 22A (June)
  Blumberg & Drummond: Nursing Care of the Long-Term Patient 182 (May)
  Bockoven: Moral Treatment in American Psychiatry 14A (Apr.)
  Boring: Physical Dimensions of Consciousness 14A (Sept.)
  Braceland & Stock: Modern Psychiatry: A Handbook for Believers 18A (June)
  Brainerd et al.: Current Diagnosis and Treatment 16A (Jan.)
  Brechner et al.: Practical Electroencephalography for the Anesthesiologist 16A (May)
  Coates: Surgery in World War II: Thoracic Surgery 12A (Jan.)
  Cole & Zollinger: Textbook of Surgery 21A (June)
  Corner: George Hoyt Whipple and His Friends: The Life-Story of a Nobel Prize Pathologist 14A (Oct.)
  Coursin & Gustafson: The Pediatric Patient—1963 12A (Feb.)

  - Cullen: Year Book of Anesthesia 176 (May)
  - Elliott: Textbook of Neuroanatomy 14A (June)
  - Emmons et al.: Medical Mycology 16A (May)
  - Fedukowicz: External Infections of the Eye: Bacterial, Viral, and Mycotic 17A (Mar.)
  - Fishbein: Birth Defects 18A (May)
  - Ganong: Review of Medical Physiology 212 (June)
  - Geist: Psychological Aspects of Diabetes, or How To Live in Emotional Balance with Diabetes 14A (Nov.)
  - Geschickter & Cannon: Color Atlas of Pathology: Central Nervous System 16A (July)
  - Goth: Medical Pharmacology: Principles and Concepts 18A (July)
  - Greenblatt: Search the Scriptures: A Physician Examines Medicine in the Bible 14A (Oct.)
  - Haley: Strategies of Psychotherapy 182 (May)
  - Hammersley: Training the Psychiatrist To Meet Changing Needs 18A (Dec.)
  - Heaton & Coates: Preventive Medicine in World War II: Vol. VI: Communicable Diseases—Malaria 14A (June)
  - Helfet: Management of Internal Derangements of the Knee 20A (Nov.)
  - Howard: Cardiovascular Surgery, 1962 14A (Feb.)
  - Jokl: What is Sportsmedicine? 18A (Nov.)
  - Keown: Anesthesia for Surgery of the Heart 14A (Sept.)
  - Lightwood & Brimblecombe: Paterson's Sick Children—Diagnosis and Treatment 14A (Sept.)
  - Lincoln & Sewell: Tuberculosis in Children 16A (July)
  - Livingston: Living with Epileptic Seizures 12A (Feb.)
  - Lucia: A History of Wine as Therapy 12A (Jan.)
  - Lumb: Small Animal Anesthesia 176 (May)
  - Masserman: Current Psychiatric Therapies, Vol. III 212 (June)
  - Masserman: Science and Psychoanalysis, Vol. VI: Violence and War with Clinical Studies 18A (June)
  - Master et al.: The Electrocardiogram and Chest X-Ray in Diseases of the Heart 22A (June)
  - McBride: Disability Evaluation and Principles of Treatment of Compensable Injuries 23A (June)
  - McElvenny: Broken Long Bone: Its Bionomics and Man 17A (Mar.)
  - McManus: Fundamental Ideas of Medicine: A Brief History of Medicine 20A (May)
  - Merritt: Textbook of Neurology 17A (Feb.)
  - Modell: Drugs of Choice 1964-1965 16A (Dec.)
  - Morse: Indications for Open Heart Surgery: Risks and Results 19A (Apr.)
  - Muntner: Medical Writings of Moses Maimonides, Vol. I: Treatise on Asthma 14A (Nov.)
  - Pearson: Strecker's Fundamentals of Psychiatry 14A (Mar.)
  - Perlman: Travel Health Guide for Infants and Children 20A (Dec.)
  - Rasch & Burke: Kinesiology and Applied Anatomy: The Science of Human Movement 19A (July)
  - Research Committee on Muscular Dystrophy: Research in Muscular Dystrophy 14A (Aug.)
  - Renbi: Clearance Tests in Clinical Medicine 14A (Aug.)
  - Robins: The Environment of Medical Practice 18A (Apr.)
  - Ross et al.: A Handbook of Radiography 19A (July)
  - Ryan et al.: Synopsis of Ear, Nose, and Throat Diseases 23A (June)
  - Sherman: An Atlas of Congenital Heart Disease 16A (Jan.)
  - Sunderman & Sunderman: Evaluation of Thyroid and Parathyroid Functions 14A (Apr.)
  - Sunshine & Gerber: Spectrophotometric Analysis of Drugs Including Atlas of Spectra 20A (June)
  - Turner: Fundamentals of Medical Education 14A (Jan.)
  - Wagenvoort: Pathology of the Pulmonary Vasculature 14A (Oct.)
  - White: Essentials of Bacteriology 16A (Feb.)
  - White et al.: Principles of Biochemistry 20A (Dec.)
  - Wilson: Intestinal Absorption 14A (Mar.)
  - Wolstenholme: Man and His Future: A Ciba Foundation Volume 182 (May)

- Brain, astrocytoma metastasizing to cervical lymph nodes after surgery and radiation (Coffey) 227 (July)

C

- Cancer
  - cerebral astrocytoma metatasizing to lymph nodes (Coffey) 227 (July)
  - colon and rectum, high mortality (Wangensteen) 109 (Mar.)
  - colon, criteria for operation (Stearns) 127 (Apr.)
  - colon, relation to polyps (Swinton & Schatman) 111 (Apr.)
  - colon, value of chemotherapy (Kennedy) 131 (Apr.)
  - esophagus and pharynx, endoscopy to confirm roentgen diagnosis (Shapiro) 224 (July)
  - lung, embolic blood-borne spread (Bailey) 479 (Dec.)
  - lung, giant-cell (Oberman & Danilovic) 415 (Nov.)
  - pain relief (Lundy) 15 (Jan.)
  - thymus gland, surgical, radiation, and drug therapy (Powell & Gallaher) 487 (Dec.)
  - uterus, factors in development from endometrial lesions (Woodruff) 11 (Jan.)
- Chest
  - pain due to cardiovascular emergencies (Campione) 213 (July)
  - pain with shortness of breath, diagnostic clues (Kavanaugh) 407 (Nov.)
  - subpleural lipoma, differential diagnosis (Seltzer) 100 (Mar.)
- Colon
  - cancer *see* Cancer
  - childhood abnormalities, diagnosis and treatment (Schapiro) 134 (Apr.)
  - diverticulitis, diagnosis and treatment (Sherman & Tenner) 114 (Apr.)
  - polyps, relation to cancer (Swinton & Schatman) 111 (Apr.)
  - skin-level colostomy, technique (Campbell & Campbell) 120 (Apr.)

  - ulcerative colitis, choice of operation (Neumeister) 141 (Apr.)
  - *see also* Proctology, Special Issue

- Congenital anomalies
  - associated with absence of umbilical artery (Magary et al.) 485 (Dec.)
  - complete interruption of aortic arch (Reidbord) 339 (Oct.)
  - patent ductus arteriosus persisting till 60 years (Fekete) 482 (Dec.)

- Coronary artery
  - atherosclerosis, incidence and causes of death in Delhi (Malhotra & Padmavati) 256 (Aug.)
  - disease causing chest pain (Campione) 213 (July)
  - disease, surgical treatment in dogs (Kennedy) 73 (Feb.)

- Corticosteroids, uses in dermatology (Macaulay) 201 (June)

- Crippled Children's Services, payment for physicians' services (Freise) 206 (June)

- Cystic fibrosis, diagnosis and treatment (Pray) 152 (May)

D

- Delivery
  - abnormal presentation, management (Johnson) 317 (Oct.)
  - Fiorinal for pain following (Vinci) 293 (Sept.)

- Dermatitis *see* Skin

- Diabetes
  - new methods of diagnosis and oral drug therapy (Sharkey) 469 (Dec.)
  - secondary hypoglycemia of (Barnard) 401 (Nov.)

- Drugs
  - antidiabetic oral agents (Sharkey) 469 (Dec.)
  - cancer chemotherapy (Kennedy) 131 (Apr.)
  - for postpartum pain (Vinci) 293 (Sept.)
  - for skin disorders (Macaulay) 201 (June)
  - for tension headache (Ryan) 351 (Oct.)

E

- Ear, management of common disorders (Nagle) 247 (Aug.)

- Embolus, pulmonary, as cause of chest pain (Campione) 219 (July)

- Esophagus
  - atresia, gastrostomy in absence of gastrointestinal gas (Linberg & Erfan) 83 (Mar.)
  - hiatal hernia with ascites (Fogle et al.) 284 (Sept.)

F

- Face, neuralgias (Nagle) 329 (Oct.)

- FARGO CLINIC Series
  - A dermatologic hobnob (Macaulay) 201 (June)
  - Cerebral astrocytoma metastatic to cervical lymph nodes (Coffey) 227 (July)
  - Clinical significance of absent umbilical artery (Magary et al.) 485 (Dec.)
  - Ear, nose, and throat for the general practitioner:
    - The ear (Nagle) 247 (Aug.)
    - The nose (Nagle) 304 (Sept.)
    - Throat, headaches, and salivary glands (Nagle) 324 (Oct.)
  - Fibrocystic disease of the pancreas (Pray) 152 (May)
  - Introduction (Pray) 151 (May)
  - Secondary hypoglycemia of diabetes mellitus (Barnard) 401 (Nov.)

- Fungous disease, superficial, griseofulvin for (Macaulay) 201 (June)

G

- Genital tract
  - likelihood of malignant change (Woodruff) 11 (Jan.)
  - *see also* Obstetrics and Gynecology for the Practitioner Series

- Griseofulvin for superficial dermatomycoses, indications (Macaulay) 201 (June)

H

- Hair loss in women, causes (Macaulay) 202 (June)

- H. D. LEES Series
  - Dos and don'ts for health service physicians (Young) 411 (Nov.)
  - Harry DeWitt Lees, M.D. (Myers) 310 (Sept.)
  - The college health doctor (Arnett) 337 (Oct.)

- Head, pain syndromes, histamine-induced changes in microcirculation as cause (Williams) 344 (Oct.)

- Headache
  - classification by cause (Nagle) 324 (Oct.)
  - tension, causes and therapy (Ryan) 349 (Oct.)

- Heart
  - defects, advances in diagnosis (Ross) 103 (Mar.)
  - knowledge of anatomy and disease in Renaissance (Ziegler) 89 (Mar.)
  - patent ductus arteriosus, persistence in aged (Fekete) 482 (Dec.)
  - precordial pulsations in pericardial effusion (Kapoor) 235 (July)
  - surgery for coronary disease, experimental background (Kennedy) 73 (Mar.)
  - surgery, mitral and aortic valve replacement with ball-valve prosthesis (Lillehei et al.) 183 (June)
  - surgery, results of ball-valve prosthesis (Martinez-Lopez) 230 (July)

- Hemorrhage
  - adenotonsillar, management (Gregg) 295 (Sept.)
  - pelvic, control by internal iliac artery ligation (Burchell) 97 (Mar.)

- Hemorrhoids, normal tissue and surgical conditions (Ferguson) 143 (Apr.)

- Hernia, esophageal hiatal, association with ascites (Fogle et al.) 284 (Sept.)

- Hypertension, effect of protein supplementation on (Ringsdorf & Cheraskin) 54 (Feb.)
- Hypoglycemia with diabetes (Barnard) 401 (Nov.)

J

- JAMES J. WARING Series
    - Cardiology in the Renaissance (Ziegler) 89 (Mar.)
    - Duct ectasia (Vincent et al.) 331 (Oct.)
    - Federal health services for Indians and Alaskan natives (Wagner) 289 (Sept.)
    - Good methods and a proper point of view (Middleton) 261 (Aug.)
    - James Johnston Waring, 1883-1962 (Myers) 4 (Jan.)
    - Pathogenicity of attenuated and avirulent tubercle bacilli (Steenken et al.) 85 (Mar.)
    - Tuberculosis and leprosy (Long) 395 (Nov.)
    - Variations in mycobacteria related intimately or remotely to the disease tuberculosis (Sweany et al.) 47 (Feb.)
- Jaundice, neonatal, due to pancreatic cyst obstructing common bile duct (Pilot et al.) 204 (June)

K

- Kidney
    - diagnosis of parenchymal lesions by nephrotomography and catheter arteriography (Halpern) 37 (Feb.)
    - hydronephrosis, gastrointestinal symptoms (Beirstein et al.) 160 (May)

L

- Lees, H. D. *see* H. D. Lees Series
- Leprosy, advances in treatment since 1937 (Long) 395 (Nov.)
- Lung
    - cancer *see* Cancer
    - duct ectasia, asymptomatic changes related to age (Vincent et al.) 331 (Oct.)
    - Hamman-Rich syndrome with weight loss, criteria for diagnosis (Friedberg et al.) 271 (Aug.)
- Lupus erythematosus, pulmonary and pleuropericardial signs (Kra & Roth) 266 (Aug.)

M

- Ménière's disease, histamine-induced changes in microcirculation as cause (Williams) 344 (Oct.)
- Mononucleosis, infectious, symptoms (Nagle) 327 (Oct.)
- Mouth pain in edentulous patient from long hamular process, surgical treatment (Gores) 353 (Oct.)

N

- Neck, pain syndromes due to histamine-induced changes in microcirculation (Williams) 344 (Oct.)
- Neuralgias of face and head (Nagle) 329 (Oct.)
- North Dakota State Medical Association transactions 21 (Jan.); 57 (Feb.); 359 (Oct.); 420 (Nov.)

O

- OBSTETRICS AND GYNECOLOGY FOR THE PRACTITIONER Series
    - Internal iliac artery ligation for pelvic hemorrhage (Burchell) 97 (Mar.)
    - Multiple anaplastic change in lower genital canal (Woodruff) 11 (Jan.)
    - Treatment of postpartum pain with Fiorinal (Vinci) 293 (Sept.)

P

- Pain
    - chest, cardiovascular causes (Campione) 213 (July)
    - postpartum, Fiorinal for (Vinci) 293 (Sept.)
    - *see also* Pain and Distress Section
- PAIN AND DISTRESS Section
    - A new hypothesis of vascular dysfunction linking certain pain syndromes of head and neck with Ménière's disease (Williams) 344 (Oct.)
    - Book reviews on pain 176 (May); 242 (July)
    - Cancer pain (Lundy) 15 (Jan.)
    - Current literature on pain 18 (Jan.); 243 (July)
    - Indifference to pain (editorial, Lundy) 167 (May)
    - Misery in the head (Lundy) 343 (Oct.)
    - Pain around the world (Gorrell) 239 (July)
    - Pain due to long hamular process in edentulous patient (Gores) 353 (Oct.)
    - Pelvic pain of gynecologic origin (Banner) 169 (May)
    - Role of muscle relaxants in surgical analgesia (Mathewson) 241 (July)
    - Tension headache (Ryan) 349 (Oct.)
- Pancreas
    - cyst causing common bile duct obstruction (Pilot et al.) 204 (June)
    - cystic fibrosis, diagnosis and treatment (Pray) 152 (May)
- Pelvis
    - hemorrhage, internal iliac artery ligation for (Burchell) 97 (Mar.)
    - pain of gynecologic origin (Banner) 169 (May)
- Pericardium
    - effusion, precordial pulsations in (Kapoor) 235 (July)
    - inflammation as cause of cardiovascular chest pain (Campione) 213 (July)
- Pharynx, common disorders, diagnosis and treatment (Nagle) 324 (Oct.)
- Physicians
    - health service practice (Young) 411 (Nov.)
    - *see also* Biographies
- PROCTOLOGY, Special Issue
    - Cancer of colon and rectum and cancer detection (Wangensteen) 109 (Apr.)
    - Chemotherapy of colon cancer (Kennedy) 131 (Apr.)
    - Current trends in surgical management of diverticulitis of the sigmoid colon (Sherman & Tenner) 114 (Apr.)
    - Perirectal abscesses and fistulas (Smith) 145 (Apr.)

  Present-day concepts of rectal and colon polyps and their relation to cancer (Swinton & Schatman) 111 (Apr.)
  Proctologic problems in children (Schapiro) 134 (Apr.)
  Proctology in the United States (Bernstein) 107 (Apr.)
  Rectal procidentia (Frykman) 122 (Apr.)
  Surgical treatment of ulcerative colitis (Neumeister) 141 (Apr.)
  The skin level sigmoid colostomy and its management (Campbell & Campbell) 120 (Apr.)
  Treatment of cancer of the colon and rectum (Stearns) 127 (Apr.)
  Treatment of hemorrhoids (Ferguson) 143 (Apr.)

Protein, effect of high dietary levels on blood pressure (Ringsdorf & Cheraskin) 54 (Feb.)

Psychoneuroses
  distortions of body image after trauma, drawing as therapeutic aid (Saxvik) 163 (May)
  in adolescents, differentiation from normal rebellion (Wallinga) 1 (Jan.)

Purpura, idiopathic hyperglobulinemic, abnormal serum proteins in (Magness & Melton) 281 (Sept.)

R

Rectum *see* Proctology, Special Issue

Respiration, shortness of breath and chest pain, diagnosis (Kavanaugh) 407 (Nov.)

Roentgen examination
  limitation in diagnosis of carcinoma of esophagus and pharynx (Shapiro) 224 (July)
  renal arteriography, new techniques (Halpern) 37 (Feb.)

Roentgen therapy, preoperative use in cancer of colon and rectum (Stearns) 127 (Apr.)

S

Salivary gland abnormalities, treatment (Nagle) 324 (Oct.)

Skin
  advances in therapy (Macaulay) 201 (June)
  purpuric lesions, abnormal serum proteins in (Magness & Melton) 281 (Sept.)

Syphilis treatment now a general medical problem (Macaulay) 201 (June)

T

Thymus gland cancer, surgical, radiation, and drug therapy (Powell & Gallaher) 487 (Dec.)

Tonsillectomy-adenoidectomy, complications and treatment (Gregg) 295 (Sept.)

Tuberculosis
  advances in treatment since 1937 (Long) 395 (Nov.)
  evaluation of attenuated and avirulent tubercle bacilli (Steenken et al.) 85 (Mar.)
  incidence of unclassified mycobacteria (Sweany et al.) 47 (Feb.)

Tumors
  brain, astrocytoma metastasizing to cervical lymph nodes after surgery and radiation (Coffey) 227 (July)
  subpleural lipoma, differential diagnosis (Seltzer) 100 (Mar.)

U

Umbilical artery absence as clue to other congenital anomalies (Magary et al.) 485 (Dec.)

W

Waring series *see* James J. Waring Series

INDEX OF ABSTRACTS

Abscess
  perirectal (Smith) 145 (Apr.)
  see also Brain

Abortion, missed, management (Spraitz et al.) 246 (July)

Analgesia and anesthesia *see* Pain

Angiitis, necrotizing, cutaneous and systemic (Winkelmann & Ditto) 400 (Nov.)

Aorta
  occlusion, oscillometric diagnosis (Troedsson) 410 (Nov.)
  translumbar catheterization for roentgen examination (Amplatz) 292 (Sept.)

Arteries
  aortic and iliac occlusion, oscillometric diagnosis (Troedsson) 410 (Nov.)
  carotid, involvement with carotid body tumor (McIlrath & ReMine) 309 (Sept.)
  coronary disease, relation to cholesterol levels (Keys et al.) 316 (Sept.)
  peripheral thrombi, forceful injection of heparinized saline for extraction (Absolon et al.) 358 (Oct.)
  thromboangiitis obliterans, prognosis and role of smoking (McPherson et al.) 244 (July)

B

Biliary tract
  recurrent common duct stones, management (Ferris et al.) 484 (Dec.)
  sclerosing cholangitis, diagnosis and treatment (Bartholomew et al.) 56 (Feb.)

Blood
  pressure, high, effectiveness of drug therapy (Farmer et al.) 46 (Feb.)
  pressure, orthostatic hypotension causing neurological symptoms, ophthalmodynamometric diagnosis (Hollenhorst et al.) 419 (Nov.)

- vessels, hepatic, changes in cirrhosis (Baldus & Hoffbauer) 316 (Sept.)
- vessels, necrotizing angiitis (Winkelmann & Ditto) 400 (Nov.)
- volume loss, mechanism of restoration (Doberneck & Zimmerman) 226 (July)

Bones *see* Fractures

Brain
- latent abscess of temporal lobe, diagnosis (Cody et al.) 484 (Dec.)
- masses, positive-contrast myelographic diagnosis (Baker) 414 (Nov.)
- narcotic analgesics in nerosurgery (Weitzner et al.) 18 (Jan.)
- *see also* Tumors

Breast, mammography, cardboard cassette aid (Donovan) 481 (Dec.)

C

Calculi *see* Biliary tract

Cancer
- colon and rectum, primary, prognosis in patients under 30 (Mayo & Pagtalunan) 53 (Feb.)
- colon, anterior resection of sigmoid and rectum without colostomy (Cullen & Mayo) 309 (Sept.)
- improved survival rates with early detection (Gilbertsen & Wangensteen) 181 (May)
- intrathecal phenol block for intractable pain (Gordon & Goel) 18 (Jan.)
- stomach lymphosarcoma, five-year survival rate (Nicoloff et al.) 336 (Oct.)
- thyroid, in children (Hayles et al.) 211 (June)
- uterus, diagnosis (Beutler et al.) 10 (Jan.)

Carotid artery involvement with carotid body tumor (McIlrath & ReMine) 309 (Sept.)

Chloroquine, effect on skeletal muscles (Whisnant et al.) 200 (June)

Cholesterol serum values as index of coronary disease (Keys et al.) 316 (Sept.)

Cirrhosis, distortions in hepatic blood supply due to (Baldus & Hoffbauer) 316 (Sept.)

Colon
- cancer *see* Cancer
- congenital atresia, management (Peck et al.) 236 (July)

Congenital anomalies
- associated with neonatal teeth (Bodenhoff & Gorlin) 410 (Nov.)
- stenosis or atresia of colon (Peck et al.) 236 (July)

Coronary artery disease, relation to cholesterol levels (Keys et al.) 316 (Sept.)

Cough, control of reflex during general anesthesia (Steinhaus & Gaskin) 19 (Jan.)

D

Delivery, nerve block for pain (Kobak et al.) 19 (Jan.)

Diabetes, juvenile, glucagon hydrochloride for hypoglycemia of (Etzwiler) 394 (Nov.)

Drugs *see* Pain

E

Ear, chronic suppurative otitis media due to latent brain abscess (Cody et al.) 484 (Dec.)

Esophagus, scleroderma, effects (Treacy et al.) 342 (Oct.)

F

Fractures
- clavicle, nonunion, conservative management (Johnson & Collins) 417 (Nov.)
- Colles', carpal tunnel syndrome due to treatment in Cotton-Loder position (Lynch & Lipscomb) 150 (Apr.)
- hand, management (Lipscomb) 10 (Jan.)

Freezing, gastric
- for postgastrectomy ulcers (Bernstein et al.) 234 (July)
- necrotic changes in animals (McIlrath et al.) 159 (May)
- structural changes in animals (Allcock et al.) 46 (Feb.)

G

Grafts, skin, splenic tissue to induce tolerance in mice (Martinez et al.) 273 (Aug.)

H

Hair loss, causes and prognosis (Muller & Winkelmann) 140 (Apr.)

Hamman-Rich syndrome with severe weight loss (Friedberg et al.) 271 (Aug.)

Hands, edema after Cotton-Loder position for Colles' fracture (Lynch & Lipscomb) 150 (Apr.)

Heart, open surgery, total-body perfusion during (DeWall & Levy) 113 (Apr.)

Hemorrhage during pregnancy, causes in first and second trimester (Banner) 84 (Mar.)

Hypertension, effectiveness of drug therapy (Farmer et al.) 46 (Feb.)

Hypoglycemia in juvenile diabetics (Etzwiler) 394 (Nov.)

Hypothermia *see* Freezing

I

Intestines, tumor, diagnosis (Myhre) 478 (Dec.)

K

Kidney damage from acetophenetidin ingestion (Reynolds & Edmondson) 18 (Jan.)

L

Leg, lymphedema, common causes (Smith et al.) 56 (Feb.)

Liver, vascular distortion in cirrhosis (Baldus & Hoffbauer) 316 (Sept.)

Lymphedema, common causes in leg (Smith et al.) 56 (Feb.)

M

Meningitis, aseptic, due to Giles virus (Kleinman et al.) 486 (Dec.)

Methoxyflurane, ineffectiveness of subnarcotic doses for somatic pain (Dundee & Love) 244 (July)

Morphine, safety in neurosurgery (Weitzner et al.) 18 (Jan.)

Muscle, skeletal, weakness due to chloroquine therapy (Whisnant et al.) 200 (June)

N

Nose, polyps in children, management (Rulon et al.) 144 (Apr.)

O

Oxytocin for missed abortion (Spraitz et al.) 246 (July)

P

Pain
  - after abdominal surgery, relief (Swerdlow et al.) 19 (Jan.)
  - bizarre phenomena in low spinal anesthesia (DeJong & Cullen) 243 (July)
  - phenothiazines for (Dundee et al.) 243 (July)
  - postoperative abdominal, lack of progress in methods of relief (Swerdlow) 244 (July)
  - postoperative, tetracaine for (Cherney) 244 (July)
  - somatic, not affected by subnarcotic concentration of inhalation anesthetic (Dundee & Love) 244 (July)

Pancreatitis, urinary amylase excretion test (Gambill & Mason) 406 (Nov.)

Pericardial effusion, radiographic detection (Stewart & Kincaid) 323 (Oct.)

Pilonidal cysts, modified marsupialization technique for (Neumeister) 200 (June)

Pituitary gland adenoma, surgical difficulties due to enlarged sella turcica (Svien et al.) 336 (Oct.)

Pregnancy
  - abortion, missed, management (Spraitz et al.) 246 (July)
  - brain tumor in, treatment (Kempers & Miller) 175 (May)
  - hemorrhage in first and second trimester (Banner) 84 (Mar.)

Psychoneurosis as early sign of myxedema (Logothetis) 96 (Mar.)

R

Roentgen examination
  - diagnosis of pericardial effusion (Stewart & Kincaid) 323 (Oct.)
  - diagnosis of vertebral epiphysitis (Williams & Pugh) 481 (Dec.)
  - mammography, cardboard cassette aid (Donovan) 481 (Dec.)
  - myelograms in diagnosis of brain tumors (Baker) 414 (Nov.)
  - translumbar catheterization of abdominal aorta (Amplatz) 292 (Sept.)

S

Scleroderma, esophageal, effects (Treacy et al.) 342 (Oct.)

Skin
  - changes of chronic necrotizing angiitis (Winkelmann & Ditto) 400 (Nov.)
  - sclerema neonatorum, diagnosis and treatment (Warwick et al.) 148 (Apr.)
  - *see also* Grafts

Smoking, role in thromboangiitis obliterans (McPherson et al.) 244 (July)

Spine
  - asymmetry and age (Schoening) 181 (May)
  - vertebral epiphysitis, roentgen diagnosis (Williams & Pugh) 481 (Dec.)

Stomach
  - freezing *see* Freezing
  - inadvertent gastroileostomy, diagnosis (Palumbo et al.) 211 (June)
  - primary lymphosarcoma, five-year survival rate (Nicoloff et al.) 336 (Oct.)
  - secretion stimulated by islet-cell tumor (Hallenbeck et al.) 53 (Feb.)

T

Teeth, natal or neonatal, associated syndromes (Bodenhoff & Gorlin) 410 (Nov.)

Thrombosis *see* Arteries

Thyroglossal duct, cysts and sinuses, surgical treatment (Judd) 99 (Mar.)

Thyroid gland
  - hypothyroidism, mental disturbance as initial symptom (Logothetis) 96 (Mar.)
  - repeated excision, complications (Beahrs & Vandertoll) 223 (July)

Tumors
  - brain, in pregnancy, treatment (Kempers & Miller) 175 (May)
  - brain, myelographic diagnosis (Baker) 414 (Nov.)
  - carotid body, management (McIlrath & ReMine) 309 (Sept.)
  - glomus, symptoms (Shugart et al.) 226 (July)
  - islet-cell, stimulation of gastric secretion by (Hallenbeck et al.) 53 (Feb.)
  - pituitary adenoma, surgical complications of enlarged sella turcica (Svien et al.) 336 (Oct.)
  - small intestine, diagnosis (Myhre) 478 (Dec.)

U

Unconsciousness due to organic disease (Thomas & Booke) 162 (May)

Uterus, pre- and postoperative discomforts (Thomas) 243 (July)

AUTHOR INDEX

A

Arnett, John H., The college health doctor 337 (Oct.)

B

Bailey, Alan H., Case report on unusual metastatic spread of bronchogenic carcinoma 479 (Dec.)

Banner, Edward A., Pelvic pain of gynecologic origin 169 (May)

Barnard, Donald M., Secondary hypoglycemia of diabetes mellitus 401 (Nov.)

Bartholomew, Lloyd G., Association of esophageal hiatal hernia with ascites 284 (Sept.)

Beirstein, Samuel S., Unusual symptom complex from massive hydronephrosis 160 (May)

Bernstein, William C., Proctology in the United States 107 (Apr.)

Bohannan, James C., Variations in mycobacteria related intimately or remotely to the disease tuberculosis 47 (Feb.)

Bonnabeau, Raymond C., Jr., Current techniques in the surgical approach to aortic and mitral valvular disease 183 (June)

Burchell, R. Clay. Internal iliac artery ligation 97 (Mar.)

C

Cain, James C., Association of esophageal hiatal hernia with ascites 284 (Sept.)

Campbell, Frederick B., Skin level sigmoid colostomy and its management 120 (Apr.)

Campbell, John G., Skin level sigmoid colostomy and its management 120 (Apr.)

Campione, Kenneth M., Cardiovascular chest pain as an emergency situation 213 (July)

Cheraskin, E., Protein supplementation and blood pressure 54 (Feb.)

Coffey, James H., Cerebral astrocytoma metastatic to cervical lymph nodes 227 (July)

D

Danilovic, Z., Giant-cell carcinoma of lung 415 (Nov.)

Dart, Gladys A., Duct ectasia 331 (Oct.)

Dodds, G., Alfred, Clinical significance of absent umbilical artery 485 (Dec.)

E

Eckman, James, biography of Donald Church Balfour, M.D. 177 (May)

Erfan, Bahram, Esophageal atresia and gasless abdomen 83 (Mar.)

F

Fekete, Andrew M., Persistency of patent ductus arteriosus in the aged 482 (Dec.)

Ferguson, James A., Treatment of hemorrhoids 143 (Apr.)

Filley, Giles F., Duct ectasia 331 (Oct.)

Fogle, James L., Association of esophageal hiatal hernia with ascites 284 (Sept.)

Freise, P. W., Payment for physicians' services from Crippled Children's Services' funds 206 (June)

Friedberg, E. C., A case of Hamman-Rich syndrome presenting with severe weight loss 271 (Aug.)

Frykman, Howard M., Rectal procidentia 122 (Apr.)

G

Galasko, C. S. B., A case of Hamman-Rich syndrome presenting with severe weight loss 271 (Aug.)

Gallaher, B. Shannon, The inexorable malignant thymoma 487 (Dec.)

Gillam, John S., Clinical significance of absent umbilical artery 485 (Dec.)

Gilman, Gertrude M., biography of Ray M. Amberg 207 (June)

Gooselaw, J. G., Obstruction of common bile duct in the newborn by pancreatic cyst 204 (June)

Gorell, Ralph, Pain around the world 239 (July)

Gores, Robert J., Pain due to long hamular process in the edentulous patient 353 (Oct.)

Gregg, John B., Complications of tonsillectomy-adenoidectomy and their treatment 295 (Sept.)

Grinnell, Ernest L., biography of John Harris Moore, M.D. 149 (Apr.)

H

Halpern, Mordecai, Special diagnostic techniques in lesions of the renal parenchyma 37 (Feb.)

Harris, Lorraine M., Duct ectasia 331 (Oct.)

Hartig, Paul Richard, Unusual symptom complex from massive hydronephrosis 160 (May)

Hodgson, John R., Association of esophageal hiatal hernia with ascites 284 (Sept.)

I

Isaacson, P. G., Obstruction of common bile duct in the newborn by pancreatic cyst 204 (June)

J

Johnson, Carl E., Abnormal fetal presentations 317 (Oct.)

Johnson, James A., My years with Dr. John B. Murphy 493 (Dec.)

K

Kapoor, O. P., Precordial pulsations in pericardial effusion 235 (July)

Kavanaugh, Gerald J., Shortness of breath and chest pain 407 (Nov.)

Kennedy, B. J., Chemotherapy of colon cancer 131 (Apr.)

Kennedy, John H., Experimental background for surgical treatment of coronary heart disease 73 (Mar.)

Kra, Siegfried J., Pulmonary and pleuropericardial manifestations of systemic lupus erythematosus in elderly male patient 266 (Aug.)

L

Levy, Morris J., Current techniques in surgical approach to aortic and mitral valvular disease 183 (June)

Lillehei, C. Walton, Current techniques in surgical approach to aortic and mitral valvular disease 183 (June)

Linberg, Eugene J., Esophageal atresia and gasless abdomen 83 (Mar.)

Long, Esmond R., Tuberculosis and leprosy 395 (Nov.)

Lundy, John S.
  Cancer pain 15 (Jan.)
  Misery in the head 343 (Oct.)
  Need for study of patients indifferent to pain 167 (May)

M

Macaulay, W. L., A dermatologic hobnob 201 (June)

Magary, Victor J., Clinical significance of absent umbilical artery 485 (Dec.)

Magness, John L., Idiopathic hyperglobulinemic purpura 281 (Sept.)

Malhotra, A., Coronary atherosclerosis in Delhi 256 (Aug.)

Martin, William J., Bacteremia due to gram-negative bacilli 385 (Nov.)

Martinez-Lopez, Jorge I., Observations in patients with prosthetic valve replacement 230 (July)

Mathewson, Hugh S., Role of muscle relaxation in surgical analgesia 241 (July)

McHenry, Martin C., Bacteremia due to gram-negative bacilli 385 (Nov.)

Melton, Frank M., Idiopathic hyperglobulinemic purpura 281 (Sept.)

Middleton, William S., Good methods and a proper point of view 261 (Aug.)

Mitchell, Roger S., Duct ectasia 331 (Oct.)

Moral, Harvey M., Unusual symptom complex from massive hydronephrosis 160 (May)

Myers, J. Arthur
  biography of Donald J. Cowling 274 (Aug.)
  biography of Harry DeWitt Lees, M.D., 310 (Sept.)
  biography of James Johnston Waring (1883-1962) 4 (Jan.)
  biography of Tommy Bell 237 (July)

N

Nagle, Duane W., Ear, nose, and throat for the general practitioner:
  The ear 247 (Aug.)
  The nose 304 (Sept.)
  Throat, headaches, and salivary glands 324 (Oct.)

Neumeister, Charles, Surgical treatment of ulcerative colitis 141 (Apr.)

Nierling, R. D., biography of Ernest J. Larson, M.D. 106 (Mar.)

O

Oberman, B., Giant-cell carcinoma of lung 415 (Nov.)

P

Padmavati, S., Coronary atherosclerosis in Delhi 256 (Aug.)

Petty, Thomas L., Duct ectasia 331 (Oct.)

Pilot, L. M. J. R., Obstruction of common bile duct in the newborn by a pancreatic cyst 204 (June)

Poindexter, M. H., Clinical significance of absent umbilical artery 485 (Dec.)

Powell, Barbara, The inexorable malignant thymoma 487 (Dec.)

Pray, Laurence G., Fargo Clinic Series:
  Introduction 151 (May)
  Fibrocystic disease of pancreas 152 (May)

R

Raleigh, James W., Pathogenicity of attenuated and avirulent tubercle bacilli 85 (Mar.)

Reidbord, Howard E., Complete interruption of the aortic arch 339 (Oct.)

Ringsdorf, W. M., Jr., Protein supplementation and blood pressure 54 (Feb.)

Ross, John, Application of recent advances in methodology to cardiovascular diagnosis 103 (Mar.)

Roth, O., Pulmonary and pleuropericardial manifestations of systemic lupus erythematosus in elderly male patient 266 (Aug.)

Rubenstein, A. H., A case of Hamman-Rich syndrome presenting with severe weight loss 271 (Aug.)

Ryan, Robert E., Tension headache 349 (Oct.)

Ryan, Stephen F., Duct ectasia 331 (Oct.)

S

Saxvik, R. O., Distortions of body image following destruction of a body part 163 (May)

Schapiro, Saul, Proctologic problems in children 134 (Apr.)

Schatman, Benjamin H., Present-day concepts of rectal and colon polyps and their relation to cancer 111 (Apr.)

Scholes, Vernon E., Variations in mycobacteria related intimately or remotely to the disease tuberculosis 47 (Feb.)

Seham, Max
  biography of E. J. Huenekens, M.D. 245 (July)
  biography of Fred Constans Rodda, M.D. 418 (Nov.)

Seltzer, Ronald A., Subpleural lipoma 100 (Mar.)

Shapiro, Sidney K., Pitfalls in x-ray diagnosis of carcinoma of esophagus and pharynx 224 (July)

Shepard, William P., biography of Ruth Evelyn Boynton 355 (Oct.)

Sherman, Lloyd F., Current trends in surgical management of diverticulitis of sigmoid colon 114 (Apr.)

Smith, Marjorie M., Pathogenicity of attenuated and avirulent tubercle bacilli 85 (Mar.)

Smith, Newton D., Perirectal abscesses and fistulas 145 (Apr.)

Stearns, Maus W., Jr., Treatment of cancer of colon and rectum 127 (Apr.)

Steenken, William, Pathogenicity of attenuated and avirulent tubercle bacilli 85 (Mar.)

Sweany, Henry C., Variations in mycobacteria related intimately or remotely to the disease tuberculosis 47 (Feb.)

Swinton, Neil W., Present-day concepts of rectal and colon polyps and their relation to cancer 111 (Apr.)

T

Tenner, Robert J., Current trends in surgical management of diverticulitis of the sigmoid colon 114 (Apr.)

Thomas, James R., Variations in mycobacteria related intimately or remotely to the disease tuberculosis 47 (Feb.)

V

Vincent, Thomas N., Duct ectasia 331 (Oct.)

Vinci, Samuel L., Treatment of postpartum pain with Fiorinal 293 (Sept.)

W

Wagner, Carruth J., Federal health services for Indians and Alaskan natives 289 (Sept.)

Wagner, Wiltz, Duct ectasia 331 (Oct.)

Wallinga, Jack V., The adolescent emotional quandary 1 (Jan.)

Wangensteen, Owen H., Cancer of colon and rectum and cancer detection 109 (Apr.)

Williams, Henry L., New hypothesis of vascular dysfunction linking certain pain syndromes of head and neck with Ménière's disease 344 (Oct.)

Woodruff, J. D., Multiple anaplastic change in lower genital canal 11 (Jan.)

Y

Young, A. Kenneth, Dos and don'ts for health service physicians 411 (Nov.)

Z

Ziegler, John L., Cardiology in the Renaissance 89 (Mar.)

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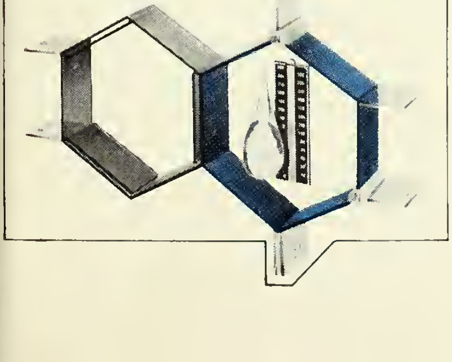

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1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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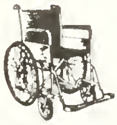

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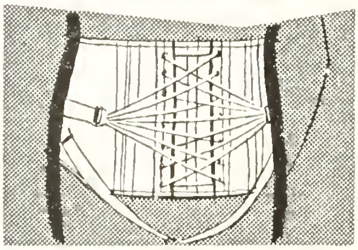

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Book Reviews . . .

Drugs of Choice 1964-1965

edited by WALTER MODELL, *1,018 pp., ill., C. V. Mosby Co., St. Louis, Mo., 1964. $16.75*

First issued in 1958 and thereafter at two-year intervals, Drugs of Choice has been and continues to be a real help to physicians. It indicates clearly the various factors involved in the choice of "one sort of medicine in preference to another," as Thomas Sydenham (1624-1689) phrased it long ago. Dr. Modell and his 46 collaborators do represent clinicians who have had wide practical experience in drug use, and their judgment can be considered to be wise and sound.

The volume opens well with a consideration of general principles governing the choice of drugs for clinical use and, further, with a consideration of physical and chemical properties important in the choice of drugs. There is an important new chapter on adverse drug reactions and alternative drugs of choice. A special chapter by A. K. Done refers to drugs for children.

The volume is well organized. The discussion on particular types of drugs is opened by analyzing agents used to adjust and maintain internal homeostasis. There is an important and relatively large chapter on dermatologic drugs. Indeed, drugs for all clinical specialties are well handled. There is an important concluding chapter on drugs for the treatment of poisoning, and then there is an excellent drug index.

In view of the relative completeness of this important book, it is rather disappointing that there is no consideration of drugs that may be used for diagnostic purposes. These are becoming more important all the time, and their use imposes special risks from toxic reactions, either on single or repeated administration. It is interesting that pharmacologists and clinicians are so conditioned to think of drugs only in connection with therapeutic use that they fail to remember that chemical agents administered to people for diagnostic purposes are really drugs and may have significant toxicities associated with them.

An excellent feature of Drugs of Choice is the careful outline of each chapter, which is given at the opening of the chapter, and then there are selected references with each chapter closing. Tabulated detail also aids in rapid reference use.

Altogether, this book may be well recommended for rapid reference by members of all of the health professions.

CHAUNCEY D. LEAKE
San Francisco

Surgical Pathology

by LAUREN V. ACKERMAN *and* HARVEY R. BUTCHER, JR., *3rd ed., 1,244 pp., ill., C. V. Mosby Co., St. Louis, 1964. $18.75*

The third edition of this has done nothing but improve on what had already become the classic book in its field. The original edition had 836 pages; with expansion there are many new illustrations, and there is a wealth of important but concisely handled detail that is presented authoritatively and clearly. The authors are able to make pathology a living science with their excellent clinical-pathological correlations. Electron microscope findings are inserted where they are pertinent to the understanding of a disease process.

(Continued on page 18A)

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(Continued from page 16A)

The chapters relate the surgical pathology of all organ systems to patient care and prognosis. It is therefore valuable to all physicians and is a must for all surgeons and pathologists.

ROBERT L. WOODBURN, M.D.
St. Paul

Training the Psychiatrist To Meet Changing Needs

by executive editor, DONALD W. HAMMERSLEY, *263 pp., ill., American Psychiatric Association, Washington, 1964. $3*

Report of the 1962 conference on Graduate Psychiatric Education sponsored by the American Psychiatric Association.

In the ten years since the publication of "The Psychiatrist, His Training and Development," there has been a shift in the treatment of the acute psychiatric illness from the isolated mental hospital into the community and a shortening of the period for inpatient care, with day hospitals and outpatient facilities providing support after discharge. The leading psychiatric educators of the United States were brought together to consider how best to train psychiatrists to meet the demands posed by changing medical, social, and public needs. This volume is a well-written condensation of their deliberations.

For some time the profession has recognized that the patient, in addition to being a sick person needing medical and psychiatric care, is a social being who can, more often than not, be most effectively treated in his own community. Modern therapy requires corresponding changes in the organization of the many agencies, clinics, and hospitals caring for psychiatric patients and a reorientation of psychiatric training attitudes and directions from a restricted concern with individual psychopathology to a broader involvement with the psychosocial problems of the entire community. The new dimension gained by psychiatry requires that psychiatrists, teachers, and trainees alike add a sociological approach to the profession via the understanding of basic behavioral science, the application of public health methods, and the increasing of sophistication in the areas of supervision, administration, and group motivation.

The numerous additional skills demanded of the psychiatrist of the future can be appreciated through reading this volume. A working knowledge of its contents will be of essential interest to all psychiatric educators, to members of the mental health profession, and to the

(Continued on page 20A)

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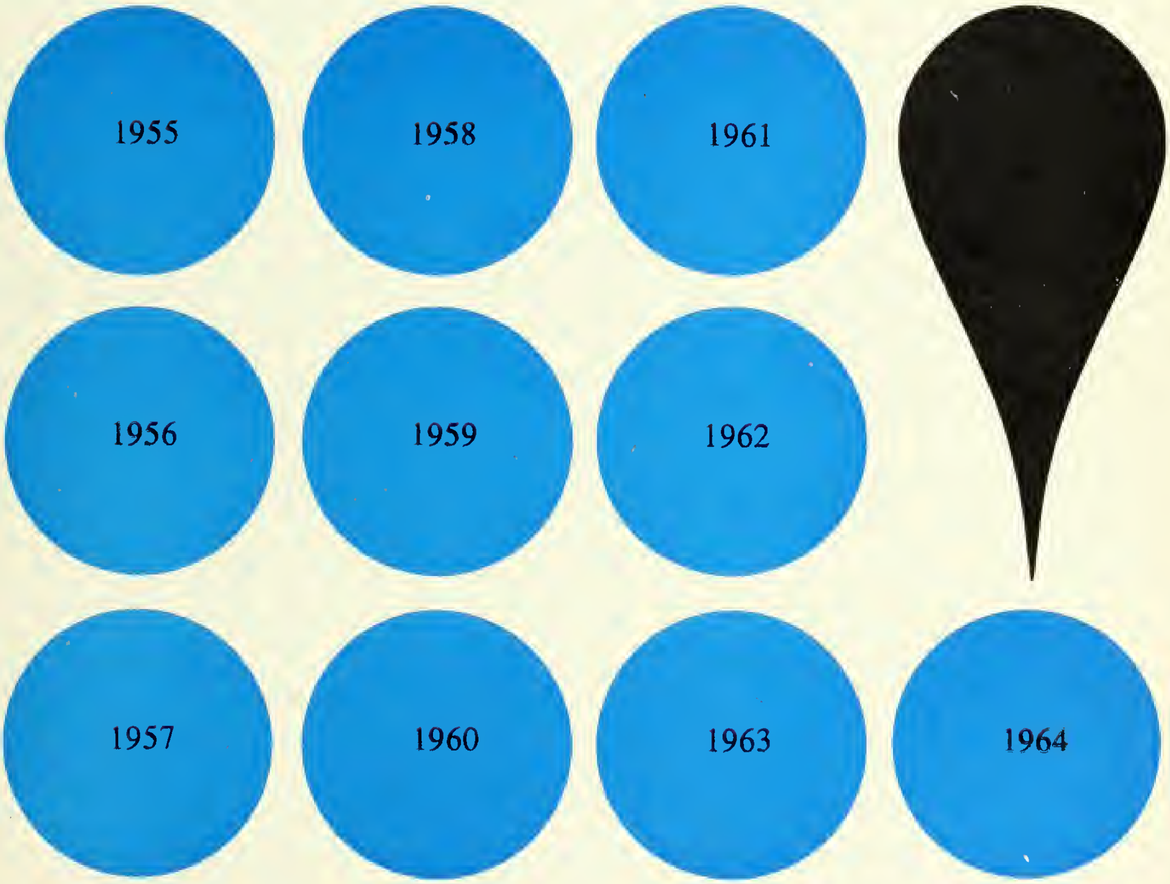

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(Continued from page 18A)

many physicians currently participating in mental health planning, since the book is truly a blueprint for the psychiatry of the future.

RICHARD W. ANDERSON, M.D.
Minneapolis

Travel Health Guide for Infants and Children

by EVERETT C. PERLMAN, *144 pp., ill., Motor Travel Services, Inc., Minneapolis, 1964. 50¢*

Dr. Perlman has written this paper-back for popular consumption by those timid parents who need advice about taking children along on motor trips. It is a book that physicians can prescribe in lieu of a half-hour session with such parents. The author covers not only the field of health advice for travel but also discusses at length the little items that contribute to a happy trip for the children, hence a happy trip for all. Included is a chapter by Dr. Leo J. Hanvik of the Washburn Clinic on "Child Psychology While Traveling." Dr. Perlman has suggested many resourceful methods of handling small emergencies on the road. He has avoided as much as possible such obvious advice as "call a doctor" and has suggested various means of handling health problems by the parents.

The reviewer, though not a pediatrician, has had considerable experience traveling with children by car with his wife and cannot resist a few words of advice on the subject. Dr. Perlman suggests to start early in the morning and quit driving early in the afternoon. The reviewer's wife has found this conducive to happy traveling when the reviewer is not in the car. Also, for physicians only, when distance is great and time short, judicious exhibition of barbiturates in small doses well mashed in treacle may allow a day's journey beginning early in the morning to continue happily and silently far into the night.

Surprisingly, the author has seen fit to recommend taking pets along in the car. This advice may be sound when the pet is a dog, but cats belong at home. Dr. Hanvik in his chapter offers the best advice by suggesting that animals brought along should be stuffed.

REUBEN BERMAN, M.D.
Minneapolis

Principles of Biochemistry

by ABRAHAM WHITE, PHILIP HANDLER, *and* EMIL L. SMITH, *3rd ed., 1,100 pp., ill., McGraw-Hill Book Co., New York City, 1964. $16.50*

In this 1,100-page book the authors state they have attempted to present the fundamental concepts of biochemistry. It is obvious that there are many more concepts now than when most of us attended school, and this is demonstrated by extensive revision of the book, now divided into 7 parts: chemical composition of cells, catalysis, metabolism, body fluids, biochemistry of specialized tissues, biochemistry of the endocrine glands, and nutrition.

This book is intended primarily for medical students and is of little immediate or practical use to most practitioners.

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1. Editorial: Postgrad. Med., *34*:102, 1963. 2. Brise, H., and Hallberg, L.: Acta med. scandinav., *171*(Supplement No. 376):23, 1962. 3. Sheehy, T. W.: Blood, *18*:623, 1961.

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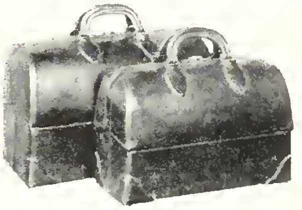

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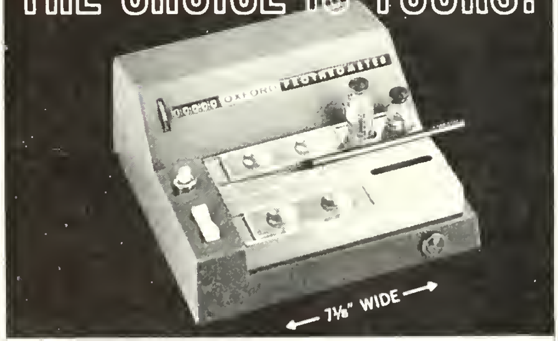

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News Briefs . . .

North Dakota

DR. GILBERTO GONZALEZ, a surgeon, has joined the staff of the Missouri Valley Clinic, Bismarck. A native of Monterrey, Mexico, he received his medical training at the University of Nuevo Leon, Mexico, and served two years of rotating internship at McKennan and Sioux Valley hospitals, Sioux Falls. Dr. Gonzalez had seven years of general surgery and thoracic surgery at St. Anthony Hospital, Rockford, Ill., Mercy Hospital and the Municipal Tuberculosis Sanatorium in Chicago, and the State University of Iowa Hospitals, Iowa City.

° ° ° °

DR. DELANO M. PFEIFLE has joined the department of internal medicine at the Quain & Ramstad Clinic, Bismarck. A graduate of Northwestern University Medical School, Chicago, he interned at the Evanston Hospital, Evanston, Ill. Completing a three-year residency at the Mayo Clinic, he associated with the Dakota Clinic in Fargo and returned to Mayo as assistant to the staff in general medicine before moving to Bismarck.

° ° ° °

FOUR DOCTORS have joined the Fargo Clinic staff, bringing the total membership to 41. Dr. Ronald Olin, a native of Winnipeg, Manitoba, Canada, is in the internal medicine department. He received his medical degree from the University of Manitoba, interned at Winnipeg General Hospital, and completed a four-year fellowship at the Mayo Clinic. Dr. Leonard Levine, also of Winnipeg, has joined the urology department. After receiving his M.D. degree from the University of Manitoba, he interned at St. Boniface Hospital, Winnipeg, and took a residency there and at Mount Sinai Hospital of Cleveland and University Hospitals of Cleveland. He was with the Grand Forks Clinic from 1959 to 1963 and with the Mall Medical Group in Winnipeg until his recent move. Dr. Stanley D. Thompson is a new member of the radiology department. A native of Fergus Falls, Minn., he attended the University of North Dakota and received his M.D. degree from the University of Pennsylvania, Philadelphia. He interned at St. Luke's Hospital, Fargo, and took a residency there and a three-year radiology residency at the Mayo Clinic. Dr. D. Ross Halliday, a native of Kenmare, N.D., joined the department of orthopedics. He attended the University of North Dakota

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and received his medical degree from McGill University, Montreal, Canada. After internship at Ancker Hospital, St. Paul, he served as flight surgeon at Minot Air Force Base and completed a four-year fellowship at the Mayo Clinic in orthopedics.

* * * *

DR. VICTOR SZYRYNSKI, chairman of the department of psychiatry at the University of North Dakota, has accepted a professorship of psychiatry at the University of Ottawa, Ontario, Canada. He also will head the department of psychiatry at Ottawa General Hospital.

Minnesota

DR. CHARLES J. PRESPARE, a surgeon, has joined the Waconia Clinic, affiliating with Dr. Leighton W. Larson. Born in New York state, he received his B.S. degree from Long Island University, New York, and received his medical degree from the University of Bologna, Italy, in 1957. Dr. Prespare interned at Morrisaina City Hospital, New York City, and took a four-year surgical residency at Coney Island Hospital, Brooklyn. He served a fellowship at the New York Polyclinic Hospital in New York City and has since maintained a private surgical practice in suburban New York City.

* * * *

DR. CHARLES H. WATKINS, a specialist in leukemias and anemias, with the Mayo Clinic for thirty-four years, has retired and plans to move to Redlands, Calif. He received his M.D. degree from the University of Minnesota in 1928, interned at the University of Minnesota Hospitals, and came to the Mayo Clinic in 1929, becoming a staff member in 1930. In 1945 Dr. Watkins became a head of a medical section and has been a senior consultant for the past five years. During World War II he was chief of staff at the Naval Hospital, Corona, Calif., and clinical administrator at the Naval Hospital in Charleston, S.C. Following his California move, Dr. Watkins will act as visiting consultant to the Riverside Medical Clinic, Riverside, Calif.

* * * *

DR. PAO-SHU CHEN has joined the staff of the Moose Lake State Hospital, following five months of service with the St. Louis County health department. Born in China, he received his medical degree from Peking Medical College and practiced in Shanghai for twelve years. In 1946 he joined the National Institute of Health of China and in 1949 moved to Taiwan, Formosa, with the institute. He obtained a fellowship from the World Health Organization in 1953 and took postgraduate public health work at the University of Minnesota, returning to Taiwan in 1954. In 1957 he returned to the United States and practiced for six years in Kansas. He became an American citizen in 1963.

* * * *

DR. THOMAS L. PEYLA has joined the Olmsted Medical Group, Rochester, as a pediatrician. He received his M.D. degree from the University of Illinois, Chicago, and interned at Fresno County General Hospital, Fresno, Calif. Dr. Peyla recently completed a Mayo Foundation fellowship.

(Continued on page 24A)

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NEWS BRIEFS

(Continued from page 23A)

DOCTOR—SISTERS LILLIAN L. and **KATHERINE A. NYE**, who have practiced in St. Paul for nearly fifty years, received the University of Minnesota Outstanding Achievement Award in October. Both doctors have made many contributions to public health through community and civic organizations, as well as maintaining their private practices. Dr. Lillian, a pediatrician, is chief staff physician of the St. Paul Family Nursing Service child health clinics and for fourteen years was medical inspector for St. Paul public schools. She began private practice in 1921 and now is a university clinical associate professor emeritus of pediatrics after serving forty years on the faculty. Dr. Katherine, who began practicing in 1915, is director of the St. Paul Bureau of Health's immunization clinic and has been a part-time medical examiner for the bureau since 1922. Both doctors were born in Zumbrota, Minn., Lillian in 1885 and Katherine in 1887. Dr. Katherine did all her college work at the university, receiving a B.S. in 1912 and an M.D. degree in 1914. Dr. Lillian received a B.A. degree from Grinnell College, Grinnell, Iowa, in 1909 and an M.A. degree from the University of Minnesota in 1910. She attended Yale University Medical School and Johns Hopkins University, Baltimore, receiving her M.D. degree from Johns Hopkins in 1921. Dr. Lillian, with a special interest in summer camps for children, often has served as camp physician, has been on the executive committee of the American Camping Association, and was active in the formative years of the Girl Scout council in St. Paul and Ramsey County. Dr. Katherine was medical examiner for girls for Ramsey County juvenile court from 1922-58, a physician for the Welcome Hall Day Nursery from 1927-59, and a staff member of the Amherst H. Wilder Foundation Dispensary from 1924-46.

° ° ° °

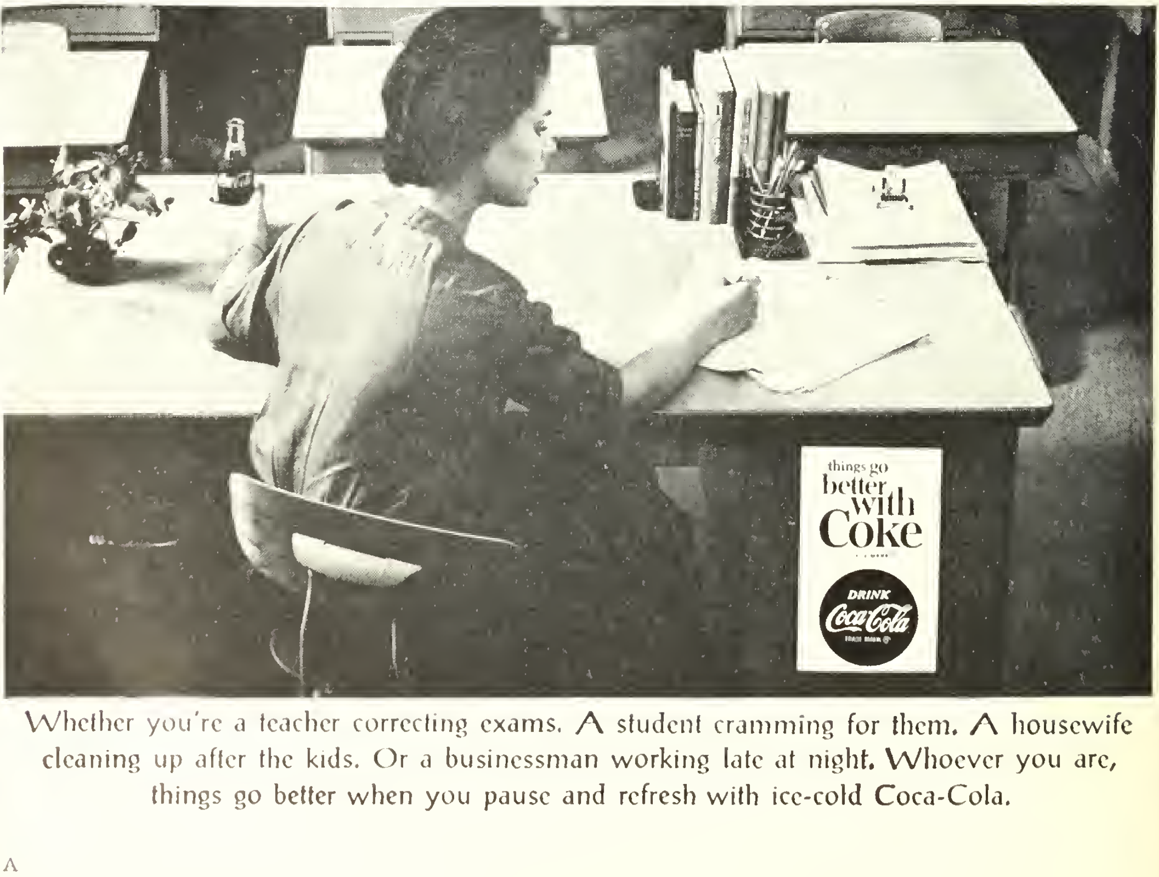
DR. JOHN P. MEDELMAN of suburban St. Paul, president of the Minnesota State Medical Society and secretary of the State Board of Medical Examiners, was named president-elect of the American Roentgen Ray Society during the organization's recent annual convention in Minneapolis. He has been a diplomate of the American Board of Radiology since 1935. Dr. Medelman, who grew up on a farm near Devils Lake, N.D., has been associated with St. Joseph's Hospital, St. Paul, for twenty-eight years. He now is director of the hospital's school of X-ray technology and planner of its new cobalt section. The new president-elect has 2 medical-bound sons: John, a sophomore at the University of Minnesota Medical School, and James, a resident in psychiatry at the University of Colorado.

° ° ° °

DR. JON R. STRATTE, general practitioner, has joined the Stillwater Clinic, Stillwater. A graduate of the University of Minnesota Medical School, he interned at Ancker Hospital, St. Paul. He is a native of Pine City, where his father, Dr. Alf K. Stratte, has been in general practice for forty years.

° ° ° °

DR. LOUIS A. BRUNSTING of the Mayo Clinic was elected president of the American Board of Dermatology at the annual board meeting in New Orleans recently. He had been a board director since 1958. A senior consultant in dermatology at the Mayo Clinic and professor of dermatology at the Mayo Graduate School of Medicine, University of Minnesota, he began his Mayo affiliation as a



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fellow in 1926. Appointed a member of the section of dermatology in 1930, Dr. Brunsting headed the section from 1953-62, when he was named a senior consultant.

° ° ° °

A LE CENTER BRANCH of the Montgomery Family Medical Clinic has been announced by Drs. Ben M. Tuma, Alfred J. Lehrer, and Alfred E. Daly. Dr. Tuma is to be in charge of the Le Center office and will live in Le Center. Drs. Lehrer and Daly will continue to have their offices in nearby Montgomery but will be available to assist with night and weekend calls. The new facility is called the Family Medical Clinic of Le Center.

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DR. ALLEN F. SCHEUNEMAN will leave his practice in Warroad January 1 and will join the staff of the Falls-Starkow Clinic, Thief River Falls. The hospital board in Warroad began looking for another doctor when Dr. Scheuneman announced his decision September 15.

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DR. JOHN J. GISVOLD, a member of the Roseau Clinic staff since 1961, will leave Roseau in January for a three-year radiology fellowship at the Mayo Clinic.

South Dakota

DR. ALFRED SHOUSHA has begun practice in Hoven, S.D., as a staff member of the Holy Infant Hospital. A native of Kartoum, Sudan, he studied at the University of Cambridge, England, and received his medical degree from the University of Cairo, Egypt, in 1955. Dr. Shousha has been in the United States since 1956 and has been an American citizen since 1963. He took a one-year internship at Woman's Hospital, Detroit, and a three-year obstetrics and gynecology residency at Nashville General Hospital, Nashville, Tenn.

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DR. LEONARD R. AKLAND has rejoined the staff of the Royal C. Johnson Veterans Hospital, Sioux Falls, after completing five years as a medical missionary in Fort Dauphin, Madagascar. He had been a staff member from 1950 to 1952. A graduate of the University of South Dakota, Dr. Akland received his M.D. degree from the University of Texas, Dallas, and interned at the University of Nebraska Hospital, Omaha. He was in the Army from 1943 to 1945 and from 1952 to 1954 and was in private practice in Canton for five years.

(Continued on page 26A)

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WANTED: General practitioner or internist to join group of five doctors in Breckenridge, Minnesota, 5000 population. Community from which practice is drawn approximates 15,000. Age—under 35 years. Salary open with opportunity for full partnership later. Excellent 125 bed hospital. New air-conditioned building. Golfing, hunting, fishing available in area. Position open July 1, 1964. Write: Breckenridge Clinic; Breckenridge, Minnesota.

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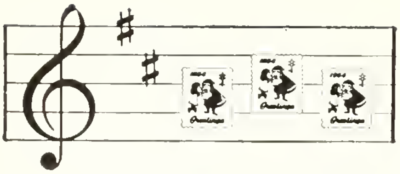
YOUNG GP AVAILABLE who desires to relocate from Twin Cities area to Outstate Minnesota, preferably Central, Northcentral, or Northwestern areas. Would consider either associating with only one other MD or else taking over practice if present man wishes to leave. Nearby hospital facilities helpful. Replies will be kept confidential. Please give particulars of practice and arrangements when replying. Reply Box 23, c/o Journal Lancet.

WANTED: Young (30-35) general surgeon, Board eligible or qualified, to associate with group of general practioners, North Dakota. Offering generous salary and early full partnership. Reply Box 24, c/o Journal Lancet.

DOCTOR for general practice work in established clinic with another Doctor. Beginning salary $1500.00 per month with opportunity for partnership after one year. Progressive W. N. Dak. town with 30 bed hospital. Reply Box 25, Journal Lancet.

CHOICE LOCATION in County Seat town in Eastern South Dakota now available for physician. Only previous physician now retired. Fine twenty-two bed hospital. Excellent opportunity in progressive town with large enough trade area for certain specialists. Write President Commercial Club, Clear Lake, South Dakota for complete details. Or phone 874-3231.



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NEWS BRIEFS

(Continued from page 25A)

DR. ALAN K. BREVIK, associated with the Brown Clinic, Watertown, since July, was named full-time staff member in September. A native of Watertown, he graduated from the University of South Dakota Medical School in 1961 and received his M.D. degree from Baylor University, Houston, in 1963. Dr. Brevik interned at Hennepin County General Hospital, Minneapolis.

Deaths . . .

DR. EARL R. LOWE, 68, a veteran South St. Paul physician and surgeon, died October 22. Born in Hadley, Minn., he had lived in South St. Paul for forty-three years. Dr. Lowe had been chief of staff at Riverview Memorial Hospital, St. Paul, and was a staff member of St. Luke's Hospital, St. Paul, and Divine Redeemer Memorial Hospital, South St. Paul. He received his M.D. degree from the University of Minnesota in 1921 after serving in the Army medical corps in World War I. Dr. Lowe was director of the Armour & Co. medical department in South St. Paul and was city school physician for many years. He was a member of the Minnesota State Medical Society. A son, Dr. Alexander D. Lowe, and a brother, Dr. Thomas A. Lowe, both live in South St. Paul.

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DR. PERCY D. PEABODY of Sisseton, S.D., died October 13 in Webster, S.D., at age 59. Born in Webster, he received his M.D. degree from Rush Medical School, Chicago, and interned at Ancker Hospital, St. Paul. He returned to Webster in 1936, where his father, Dr. P. D. Peabody, Sr., practiced, and was associated with the Peabody Hospital and Clinic for ten years. Since 1946 he had practiced in Sisseton.

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DR. WILLIAM F. SIHLER, who practiced in Devils Lake for more than fifty years, died October 17 at age 88. He was born in Simcoe, Ontario, Canada, and graduated in 1898 from the McGill University College of Medicine in Montreal. He opened a general practice in Devils Lake in 1900 and practiced there until retirement. Dr. Sihler was a fellow in the American College of Surgeons and a member of the state board of medical examiners for twenty-two years. He was president of the North Dakota State Medical Association in 1928 and, for more than fifty years, served as company surgeon for the Great Northern Railway. In 1907 he helped establish a hospital and nursing school in Devils Lake, which brought the first graduate nurses into the area. He also was a founder of the Town and Country Club, serving as president from its beginning in 1920 through 1945.

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DR. GEORGE A. GEIST, 76, a St. Paul physician and surgeon for thirty-nine years before moving to Atlanta, Ga., in 1950, died in Atlanta October 18. Son of a Minnesota pioneer family, he graduated from high school in St. Paul, received his B.S. degree from the University of Minnesota in 1909 and his M.D. in 1911, and did postdoctoral work at Johns Hopkins University, Baltimore, and in Vienna. During his sixty-two years as a St. Paul resident, he was active in cultural affairs and helped with early organizational efforts of the St. Paul Civic Opera.

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172